Baffinland Iron Mines LP
Mary River Expansion Project

Construction Summary Report: Mary River Tank Farm (2019)

PERMIT TO PRACTICE
HATCH LTD.
Signature G.A. Peace
Date APRIL 7, 2020
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

REGISTERED PROFESSIONAL ENGINEER
G.A. PEACE
LICENSEE
APRIL 7, 2020
NT/NU

			G. Peace	N. Mason	N. Mason	-
2020-04-07	0	Approved for Use	G. Peace	N. Mason	N. Mason	D. Henkelman
Date	**Rev.**	**Status**	**Prepared By**	**Checked By**	**Approved By**	**Approved By**
			HATCH			**Client**

Table of Contents

List of Tables

List of Photos

List of Appendices

1. Facility Description

1.1 Purpose and Design Basis

Baffinland Iron Mines Corporation (Baffinland) recently added a new fuel storage area at the Mary River mine site. A 15-million-litre above ground diesel fuel storage tank was constructed along with a containment area to allow for future expansion. This tank is in addition to the existing 2 million litres of storage in the previously constructed tank farm at Mary River.

The initial Mary River tank farm consisted of four (4) 500,000-litre above ground diesel fuel storage tanks.

This current report summarizes the new 15-million-litre tank constructed inside a new containment area. This report does not cover the piping, electrical and instrumentation other than what was required to allow filling of the tank. This is covered in Construction Summary Report: “Mary River Tank Farm (2019) Piping and Electrical” (H353004-10000-430-066-0004).

The new tank is a vertical single wall steel construction tank designed to API 650. It has been inspected and tested to API Section 8 which includes visual inspection of all welds, vacuum box test of welds, liquid penetration testing, magnetic particle testing and ultrasonic tests (UT) as required. In lieu of hydrostatic testing, additional liquid penetration tests and vacuum box tests have been completed in accordance with API 650 Section 7.3.5. Complete information on inspection and testing for each tank is contained in the tank “Data Book” referenced in Appendix C.

The following documents were utilized in the design and construction of the Mary River tank Farm:

- H353004-10000-240-210-0001 Design Criteria Mary River Mine Site Fuel Storage Facility.
- H353004-00000-200-210-0001 Civil Design Philosophy.
- H349000-1000-10-122-0001 Civil Design Criteria.

The secondary containment dyke is designed and constructed to the requirements of the National Fire Code of Canada.

The facility was designed and constructed to the following codes and standards:

- Tank construction will adopt the API 650 12th Edition, 2013, Welded Steel tanks for Oil Storage.
- Tank inspection, repair, alteration and reconstruction will use API 653 4th Edition, 2009; including Addendums 1 and 2.
- National Building Code of Canada (NBC) 2010.

- National Fire Code of Canada (NFCC) 2010.
- NFPA 30, 2012 Edition, Flammable and Combustible Liquids Code.
- CCME Environmental Code of Practice for Aboveground Storage Tank Systems containing Petroleum Products, 2003.
- ANSI B31.3-2012, Process Piping.
- CSA W47.1-09, Certification of Companies for Fusion Welding of Steel.
- CSA W59-03 (R2008) – Welded Steel Construction (Metal Arc Welding).
- Canadian Environmental Protection Act 1999 (2008 Update), Storage Tank System for Petroleum Products and Allied Petroleum Products Regulations.
- CSA W178.2-08, Certification of Welding Inspectors.

1.2 Location and Base Elevations

The new Mary River Tank Farm is located on the north side of the tote road, northeast of the Sailiivik Camp between northing N7913385 and N7913535, and easting E560953 and E561212. The 15-million-litre tank (TK-005) setting out point (center of tank) is Northing N7913435.039, Easting E561129.825, elevation 187.101 m.

1.3 Geometry and Access

The containment area and access was constructed as shown on the as-built drawings.

1.4 Earthworks Materials Details

The containment area around the tank farm has been constructed with raised earthworks and welded geomembrane liner for the containment of spills. Additionally, the facility is designed for containment of rainwater and snowmelt that can potentially be contaminated by contact with fuel originating from leakage or spills. Contact water is removed and treated if required before it is discharged to the receiving environment.

The liner is buried 300 mm below the floor as shown on as-built drawings.

2. Construction Activity Summary

Construction activities for the 15 million litre tank and containment started April 18, 2019, and were completed on August 9, 2019.

The following summarizes construction activities:

2.1 Preparation of the Containment Area

- Existing ground was rough excavated to subgrade elevation.
- Areas below subgrade elevation were filled with type 8 material.
- Fill material was sourced from existing stockpiles.

- A layer of geotextile was placed.
- Type 5 material was placed and compacted.
- Type 6 material was placed in the area under the tank pads followed by insulation.
- Type 9 material was placed on the complete floor followed by geotextile, liner and another layer of geotextile. The geotextile and liner was also placed under the area for a new fuel module and sloped so that any spill would drain into the containment area.
- Type 6 material was placed on the geotextile, followed by type 5.
- One new earthwork tank foundation pad (for Tank 005) was constructed along with an access ramp for access to the tank farm as detailed in the as-built drawings.
- Two drainage sumps were constructed in the drainage area.
- Dykes were constructed and the final layer of Type 7 was placed on the floor of the tank farm.
- Tank grounding system for Tank 005 and possible future Tank 006 was installed in conjunction with earthworks.
- The perimeter fencing was installed.

2.2 Fuel Tank

- Installed fuel tank body.
- Installed piping vents and drain assemblies.
- Installed pressure relief valves, piping and gate valve assemblies.
- Installed tank emergency vent/gauge hatch.
- Installed radar gauge assembly and components.
- Installed miscellaneous bolting, gaskets for valves and piping required to allow the tank to be filled.
- Installed tank obstruction light.
- Installed tank/stairway station and light fixture.
- Tested and calibrated tank level gauges and display units.

3. QA/QC

Quality Assurance (QA) was performed by the Hatch Construction Supervisor during daily audits with the Nuna Supervisor during the construction of the containment area. Quality Surveillance Inspection Acceptance and Sign-off Reports were prepared by the Nuna

Supervisor and signed of by the Hatch Representative. Quality reports for the geomembrane liner installation are included with the other quality reports referenced in Appendix B.

QA was also performed by the Hatch Construction Supervisor during daily audits with the Laframboise Supervisor during the erection and placement of the fuel tank. The new tank was inspected and tested to API Section 8 which includes visual inspection of all welds, vacuum box test of welds, liquid penetration testing, magnetic particle testing and UT tests as required. In lieu of hydrostatic testing, additional liquid penetration tests and vacuum box tests have been completed in accordance with API 650 Section 7.3.5. Complete information on inspection and testing for the tank is contained in the document ”TK 005 Arctic Fuel Diesel History Document” referenced in Appendix C.

4. Photographic Records

Photo 4-1: Early Earthworks

Photo 4-2: Preparing Pad for Tank 005

Photo 4-3: Pad for Tank 005

Photo 4-4: Tank 005 Construction in Progress

Photo 4-5: Tank 005 Fourth Ring Installed

Photo 4-6: Liner Installation (remaining area)

Photo 4-7: Earthworks Including One Sump

Photo 4-8: Aerial of Tank Farm

Photo 4-9: Aerial Closer View

5. As-built Drawings

The as-built drawings incorporate contractor red line markups, field instructions, requests for information, field sketches and all other inputs provided by the EPCM field team. As-built drawings are attached in Appendix A. These drawings are representative of the final as-built conditions.

Table 5-1: As-built Drawing List

Drawing Number	Title	Revision
H353004-10000-220-260-0002-0001	Mine Site Tank Farm Dyke Miscellaneous Details	1
H353004-10000-220-272-0009-0001	Mine Site Tank Farm Grading Plan	2
H353004-10000-220-272-0010-0001	Mine Site Tank Farm Layout and Grading Points	2
H353004-10000-220-272-0011-0001	Mine Site Tank Farm Subgrade Plan	1
H353004-10000-220-272-0012-0001	Mine Site Tank Farm Subgrade Layout and Grading Points	1
H353004-10000-220-273-0001-0001	Mine Site Tank Farm Dyke Sections A to D	2
H353004-10000-220-273-0002-0001	Mine Site Tank Farm Dyke Sections E & F	2
H353004-10000-220-273-0003-0001	Mine Site Tank Farm Dyke Sections G & H	1
H353004-10000-220-273-0004-0001	Mine Site Tank Farm Dyke Sections and Details	1
H353004-10000-220-273-0006-0001	Mine Site Tank Farm Sections Thru Truck Loading/Offloading	1
H353004-10000-221-294-0006-0001	Site Wide Standard Drawing Earthworks and Drainage Details	1
H353004-10000-240-272-0002-0001	Mine Site Tank Farm General Arrangement	3
H353004-10000-240-272-0003-0001	Mine Site Tank Farm Enlarged Piping Plan	2
MRTF Pedistal Insulation Tanks 5 & 6 & 7 2019 (Nuna)	Mary River Tank Farm Pedistal Foundation Insulation	
CC005-0001A-MRTF Final Asbuilt (Nuna)	Mary River Tank Farm Final Asbuilt Aug 15, 2019	
CAB 190903 MRTF Tk 5 & 6 Grnd Cables Rods & Pipe Crossing	Mary River Tank Farm Ground Grid and Rods Asbuilt 2019	
C-70942-LG-31 (Laframboise)	15,000,000 L Arctic Diesel Storage Tank General Arrangement	1
C-70942-LG-52 (Laframboise)	15,000,000 L Arctic Diesel Storage Tank Roof Plates Layout	0
C-70942-LG-51 (Laframboise)	15,000,000 L Arctic Diesel Storage Tank Orientation, Nozzles Description	0
C-70942-LG-53 (Laframboise)	15,000,000 L Arctic Diesel Storage Tank Shell Plates Layout	0

6. Field Decisions

The following section describes field decisions made during construction:

- The design specified two layers of 38 mm board insulation under the tank pedestals. In order to utilize on site material two layers of 50 mm insulation were installed with the fill below the insulation reduced to 176 mm from 200 mm to accommodate for the thicker insulation.
- The design specified 100 mm of type 5 material above the bottom most layer of geotextile in the area of the tank pedestals and 200 mm of type 5 above the bottom most layer of geotextile for the tank farm floor. For construction purposes this was changed to 200 mm of type 5 material throughout.
- The design specified use of type 6 material above and below the board insulation. Due to the limited availability of type 6 and the availability and suitability of type 9 material, type 9 material was substituted.
- The design specified use of type 6 material above and below the geotextile/liner/ geotextile installation. Due to the limited availability of type 6 and the availability and suitability of type 9 material, type 9 material was substituted.
- The tank pedestal capping was modified to accommodate the tank manufacturer. This included creating a 1.835 m flat section at the center of the pedestal and a 0.071 m increase in the elevation at the center of the tank and 0.074 increase in the elevation at the edge of the tank.
- The exterior slope of the dyke was overbuilt to accommodate equipment access for Key Trench excavation.

7. Performance Evaluation

Prior to erection of the tank a detailed survey was conducted to ensure the suitability of the pedestal. Minor corrections were made and the survey repeated. The survey results were reviewed and accepted by Hatch and the tank erector.

A leak has developed in a 1” socket weld on the piping at the tank. An in situ repair has been completed. The amount of diesel fuel leaked was a very small quantity (estimated at 10 ml per day) and was contained with no diesel fuel actually being spilled.

8. Vibration Monitoring and Quarrying Activity

No vibration monitoring was conducted during the construction of this work as it was not deemed necessary based on the scope of activities required for construction.

Material for the containment area and tank pads was obtained from existing stockpiles, therefore there were no specific quarrying activities conducted.

9. Environmental Monitoring

Baffinland Environment was responsible for environmental monitoring at the site during this work and following-up with construction if there were any reported environmental incidents or non-conformances. Environmental monitoring during the construction of the Mary River Tank Farm was conducted as per the Environmental Protection Plan (EPP), Baffinland document number BAF-PH1-830-P16-0008.

The Spill Contingency Plan (BAF-PH1-830-P16-0036), in conjunction with the Emergency Response Plan (BAF-PH1-830-P16-0007), provides guidance and instructions for first responders and Baffinland Management in the event of a spill event or other emergency such as fire or accident.

The risks to the environment as a result of construction activity for this work would originate from spills from equipment. There were no spills reported.

Compliance with CCME is included in Appendix E.

10. Earthworks Data

Completion surveys were conducted for each material required to build the fuel tank farm containment. Nuna's completion of construction report for the Mine Site Tank Farm (E353004-CC005-130-066-0004) includes this information in Section 4 in Appendix B.

Two geotechnical inspections (late June and late September) were conducted in 2019 by a 3rd party, independent, Nunavut certified engineer under Part D, Section 19 of Type "A" Water Licence 2AM-MRY1325. The inspection is inclusive of waste containment structures at the Mary River Mine Site and Milne Port site including the new Mine Site fuel tank farm containment. The inspector noted in Section 2.5 c of the late June report, "Based on our field review the tank farm is constructed as specified in the design drawings (subgrade, berms, bedding layer, liner and protective cover). In the late September report under Section 2.5 c it was noted that "The tank farm's new containment earthern structure did not exhibit any signs of instability, including seepage. Based on field observations it appears that the geosynthetic liner component of the structure has received protective soil cover throughout." The Annual Geotechnical Investigation Reports – 2019 are provided in Appendix G.

A geotechnical investigation was conducted in 2018 for the Mary River Mine Site which included the proposed Mary River Tank Farm location and provided recommendations. Reference report H353004-10000-229-230-0006 "2018 Mine Site Geotechnical Investigation Report". This report is also provided in Appendix G.

11. Unanticipated Observations

Not applicable.

12. Surface Monitoring

Not applicable.

13. Required Maintenance

Not applicable.

14. Adaptive Management

Construction changes were managed through issue of Engineering Change Notices (ECNs) for changes to the design and through Requests For Information (RFIs) for changes requested by the Contractor.

For discussion of adaptive management principles and practices applied and their overall effectiveness please refer to the Annual Reports to the Nunavut Water Board and the Nunavut Impact Review Board.

15. Concordance with Type "A" Water Licence

Baffinland's Type A Water Licence, Schedule D, outlines the requirements for Construction Summary/Monitoring Reports. Table 15-1 provides a concordance of this report with the requirements of Schedule D.

Table 15-1: Concordance with Type "A" Water Licence

Schedule D Item No.	Schedule D Description	Corresponding Section in this Report
1a	Description of all infrastructure and facilities designed and constructed to contain, withhold, divert or retain Water and/or Waste;	1
1b	A summary of construction activities including photographic records before, during and after construction of the facilities and infrastructure designed to contain, withhold, divert or retain Water and/or Waste;	2, 3, 4
1c	As-built drawings and design for facilities and infrastructure, in Item 1(a) of this schedule, designed and constructed to contain, withhold, divert or retain Water and/or Waste;	5
1d	Documentation of field decisions that deviate from the original plans and any data used to support or developed facilities and infrastructure to withhold, divert or retain Water and/or Waste;	6
1e	A comparison of measured versus predicted performance of infrastructure and facilities;	7
1f	Any blast vibration monitoring and control for quarrying activity carried out in close proximity to fish bearing waters;	8
1g	Monitoring conducted for sediment and explosives residue release from construction areas;	9
1h	Monitoring undertaken in accordance with Part D of the Licence during the Construction Phase of the Project;	8, 9
1i	Details confirming that the requirements of the CCME guidance document entitled "Aboveground Storage Tank Systems for Petroleum and Allied Petroleum Products (2003)" have been met by the Licensee;	Appendix E

Schedule D Item No.	Schedule D Description	Corresponding Section in this Report
1j	Data collected from instrumentation used to monitor earthworks and the interpretation of that data;	10
1k	A discussion of any unanticipated observations including changes in risk and mitigation measures implemented to reduce risk during construction;	11
1l	An overview of any method including frequency used to monitor deformations, seepage and geothermal responses;	12
1m	A summary of maintenance work undertaken as a result of settlement or deformation of dikes and dams;	13
1n	A summary of adaptive management principles and practices applied during the relevant phases of the Project and their overall effectiveness.	14

16. Concordance with Commercial Lease Requirements

Table 16-1 provides a concordance of this report with the requirements of the Commercial Lease for As-built reporting.

Table 16-1: Concordance with Commercial Lease Requirements

Component	Minimum Information Requirements	Corresponding Section in this report
1	The name and contact information of the person and company responsible for completing the construction, construction monitoring and preparing the As-built Report	Appendix D
2	The name and contact information of the Baffinland representatives(s) that QIA can contact should it have any questions or comments regarding the As-built Report	Appendix D
3	An introduction to the infrastructure or facilities including but not limited to the construction background, concept and construction history	1,2
4	Construction records including As-built drawings signed and stamped by a professional engineer detailing surveys, planar and cross sections that illustrate all designed components. This should be provided in PDF format and if requested the native file (e.g. CAD, .dxf, etc.)	Appendix A Appendix B Appendix C
5	Detailed description of any deviations from the For Construction Design. Deviations that should be noted include, but are not limited to, changes in design and construction materials, construction methodology or monitoring	6
6	Observed performance of the construction including a comparison to predicted performance. Recommendations for performance monitoring based on observations during construction if applicable	NA
7	A description and list of instrumentation installed, if applicable, and results of construction monitoring including all environmental data. Recommendations for additional performance or environmental monitoring based on observations and monitoring results, if applicable.	NA
8	A summary of quality assurance testing results, if applicable, and comparison of these results to construction/design requirements to ensure performance of the infrastructure or facilities.	3 Appendix B Appendix C
9	A summary of adaptive management principles and practices related to environmental management and monitoring applied during the relevant phases of the Project and their overall effectiveness	NA
10	Photographic records before, during and after construction of the facilities or infrastructure.	4

Component	Minimum Information Requirements	Corresponding Section in this report
11	Map(s) to illustrate the completed construction in relation to Lease boundaries and water bodies. The minimum distance from completed or modified facilities and infrastructure to the surveyed boundary of the Property, surveyed boundary of the Impact Area, and the original high water mark should be provided.	Appendix E

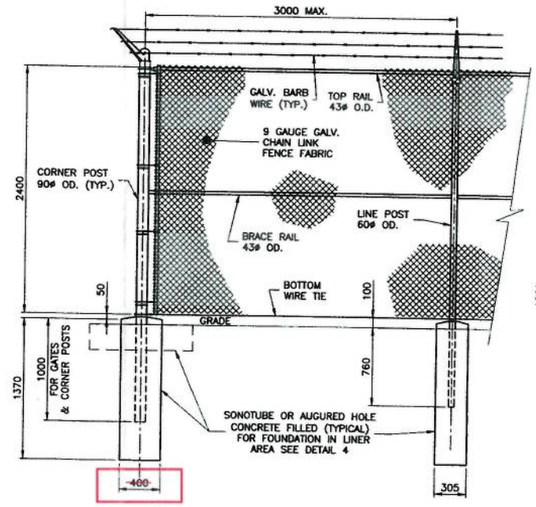
Appendix A

As-builts

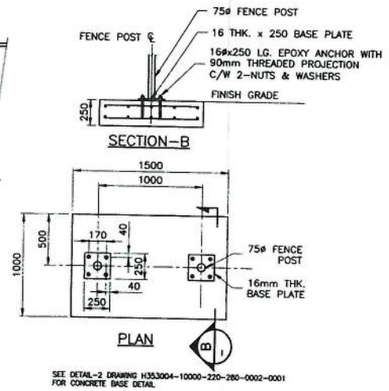
DWG. No. H353004-10000-220-260-0002-0001

NOTES

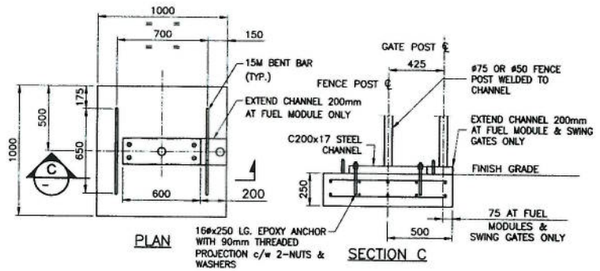
1. DIMENSIONS IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE



DETAIL 2 — TYPICAL FENCE — SCALE: 1:25 — 240-272-0002, 220-273-0001, 220-273-0002, 220-273-0003

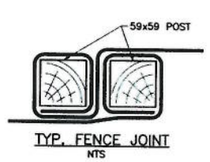


DETAIL 3 — MAN GATE POST BASE — SCALE: 1:25 — 240-272-0002

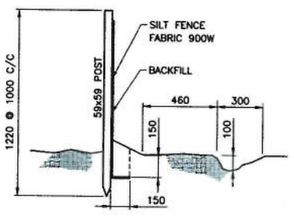


DETAIL 4 — FENCE POST BASE (IN LINER AREA ONLY) — SCALE: 1:20 — 240-272-0002

Fence Post holes changed to 305mm per RFI-0013



TYP. FENCE JOINT
NTS



SILT FENCE

DETAIL 5 — TEMPORARY SILT FENCE DURING CONSTRUCTION IN RAINY SEASON — SCALE: 1:20 — 220-272-0009

Released for Use

NUNA EAST LTD

REDLINE DRAWING

CHANGES, ADDITIONS, DELETIONS AND RELOCATIONS IN RED INK USING STANDARD SYMBOLS, DELETIONS TO BE CLOUDED AND HATCHED.

REDLINE BY: ☑ CONSTRUCTION ☐ COMMISIONING ☐ SUSTAINMENT

NAME/SIGN: [illegible] COMPANY: dcwA

DATE OF AS-BUILT: 9/26/19 ☐ CHECK IF NO CHANGE

CHECKED BY:

NAME/SIGN: COMPANY: Hatch

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date 19-01-18
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

REFERENCE DRAWINGS	
DRAWING No.	DRAWING TITLE
H353004-10000-240-272-0002-0001	MINE SITE TANK FARM GENERAL ARRANGEMENT
H353004-10000-220-273-0001-0001	MINE SITE TANK FARM DYKE SECTIONS A TO D
H353004-10000-220-273-0001-0002	MINE SITE TANK FARM DYKE SECTIONS E & F
H353004-10000-220-273-0001-0003	MINE SITE TANK FARM DYKE SECTIONS G & H

REG. PROFESSIONAL: ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS AND GEOPHYSICISTS OF THE NWT AND NUNAVUT — F.E. BUTTS — LICENSEE — P 512 — NT/NU

No.	DESCRIPTION	BY	CHK'D	DATE
1	DYKE ACCESS STAIR DETAIL-1 RELOCATED TO DWG H353004-10000-220-260-0003-0001	SJT	KM	19/01/18
0	ISSUED FOR CONSTRUCTION	HPC	MMI	18-07-25

REVISIONS

HATCH

DRAFTSPERSON	S. SKINNER	NR	18-07-06
DESIGNER	K. MacLEAN	NR	18-07-06
CHECKER	M. MacINTYRE	Michael MacIntyre	19/01/18
DESIGN COORD.	M. MacINTYRE	Michael MacIntyre	19/01/18
RESP. ENG.	F.BUTTS	F. Butts	19/01/23
LEAD DISC. ENG.	K. MacLEAN	Kyle MacLean	19/01/24
ENG. MANAGER	Glen Peace	Glen Peace	19/01/22
PROJ. MANAGER			
CLIENT	T. ATIBA		19/01/22
ROLE	NAME	SIGNATURE	DATE

DRAWING APPROVAL STATUS: Approved for Construction

Baffinland

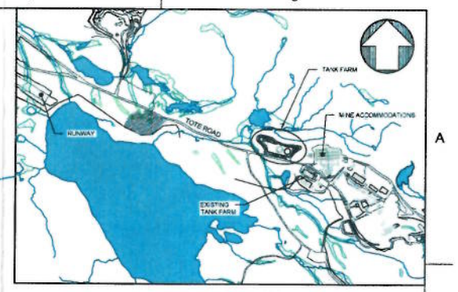
MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

MINE SITE
TANK FARM
DYKE MISCELLANEOUS DETAILS

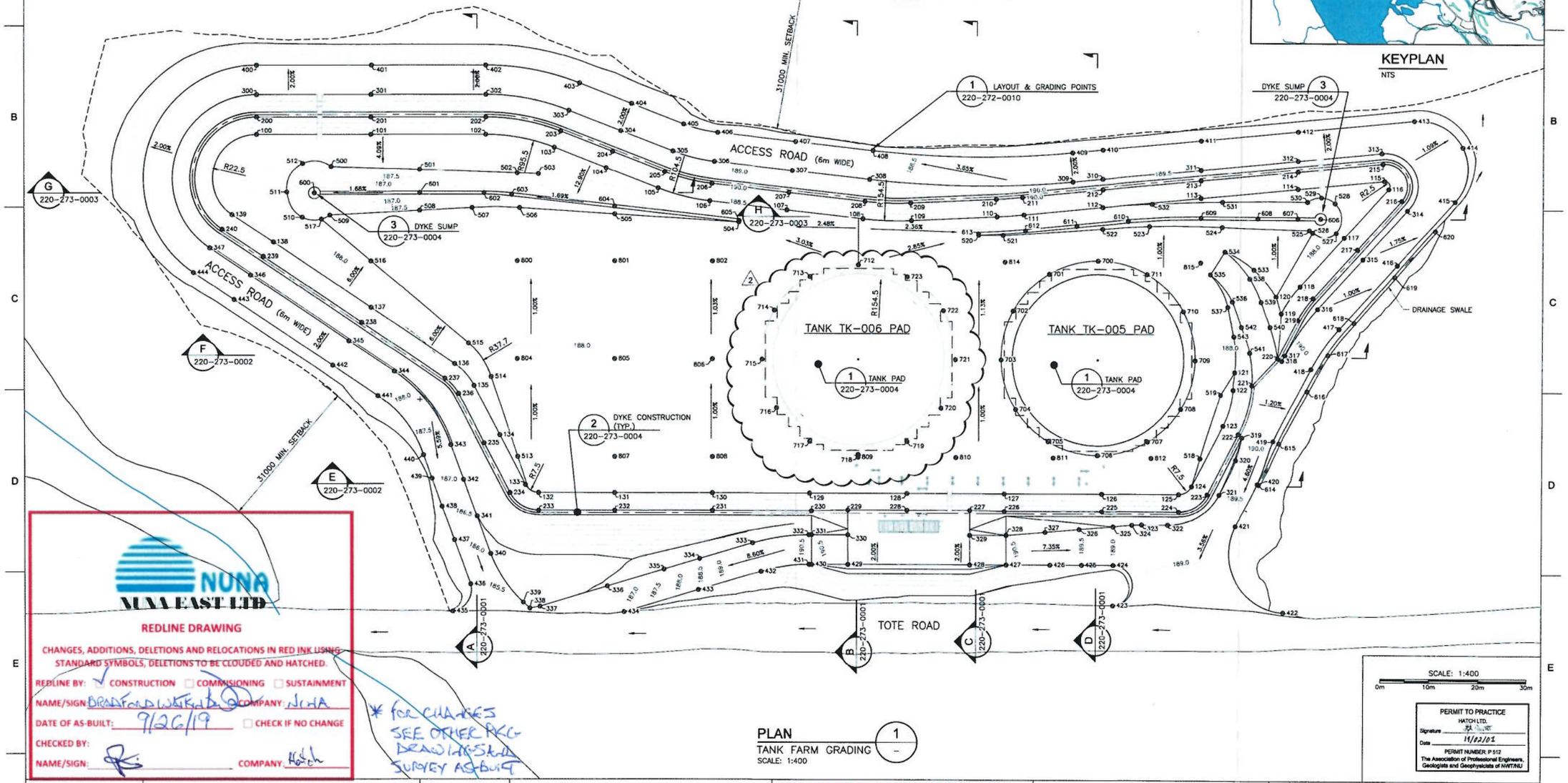
SCALE	DWG. No.	REV
1:30 OR AS NOTED	H353004-10000-220-260-0002-0001	1

SHEET SIZE: A1

DWG. No. H353004-10000-220-272-0009-0001



KEYPLAN
NTS



PLAN
TANK FARM GRADING 1
SCALE: 1:400

SCALE: 1:400
0m 10m 20m 30m

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date 19/02/01
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

NUNA
NUNA EAST LTD

REDLINE DRAWING

CHANGES, ADDITIONS, DELETIONS AND RELOCATIONS IN RED INK USING STANDARD SYMBOLS. DELETIONS TO BE CLOUDED AND HATCHED.

REDLINE BY: ☑ CONSTRUCTION ☐ COMMISIONING ☐ SUSTAINMENT
NAME/SIGN: BRAD FORD WATKINS COMPANY: NUNA
DATE OF AS-BUILT: 9/26/19 ☐ CHECK IF NO CHANGE
CHECKED BY:
NAME/SIGN: COMPANY: Hatch

* FOR CHANGES SEE OTHER PKG DRAWINGS AND SURVEY AS-BUILT

Released for Use

REGISTERED PROFESSIONAL ENGINEER T. BUTTS LICENSE NTI/NU

DRAWING No.	DRAWING TITLE
REFERENCE DRAWINGS	
H353004-10000-220-272-0010-0001	MINE SITE TANK FARM LAYOUT & GRADING POINTS
H353004-10000-220-273-0004-0001	MINE SITE DYKE SECTIONS & DETAILS
H353004-10000-220-273-0003-0001	MINE SITE TANK FARM DYKE SECTION G
H353004-10000-220-273-0002-0001	MINE SITE TANK FARM DYKE SECTIONS E & F
H353004-10000-220-273-0001-0001	MINE SITE TANK FARM DYKE SECTIONS A TO D

REG. PROFESSIONAL

No.	DESCRIPTION	BY	CHK'D	DATE
REVISIONS				
2	SECOND TANK PAD & GRADING POINTS ADDED	MMI	MMI	19/01/04
1	DYKE ACCESS & ROAD REVISED	SS	MMI	19-01-18
0	ISSUED FOR CONSTRUCTION	SS	MMI	18-07-25

HATCH

DRAFTSPERSON	S. SKINNER	NR	18-07-06
DESIGNER	K. MacLEAN	NR	18-07-06
CHECKER	M. MacINTYRE		19/02/01
DESIGN COORD.	M. MacINTYRE		19/02/01
RESP. ENG.	F. BUTTS		19/02/01
LEAD DISC. ENG.	K. MacLEAN		19/02/01
ENG. MANAGER	G. PEACE		19/02/04
REF. MANAGER	H. VENTER		19/02/15
CLIENT	T. ATIBA		19-2-25

DRAWING APPROVAL STATUS: Approved for Construction

Baffinland

MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

MINE SITE
TANK FARM GRADING
PLAN

SCALE	DWG. No.	REV
1:400 OR AS NOTED	H353004-10000-220-272-0009-0001	2

SHEET SIZE: A1

DWG. No. H353004-10000-220-272-0010-0001

LAYOUT & GRADING POINTS				
TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
100	TOE OF DYKE	188.300	7913520.921	560972.360
101	TOE OF DYKE	188.300	7913515.359	560995.065
102	TOE OF DYKE	188.300	7913509.740	561018.002
103	TOE OF DYKE	188.300	7913503.841	561030.947
104	TOE OF DYKE	188.300	7913497.247	561040.267
105	TOE OF DYKE	188.300	7913490.852	561049.626
106	TOE OF DYKE	188.300	7913485.576	561059.282
107	TOE OF DYKE	188.300	7913480.100	561074.141
108	TOE OF DYKE	188.300	7913474.624	561089.000
109	TOE OF DYKE	188.300	7913471.948	561098.569
110	TOE OF DYKE	188.300	7913468.607	561115.743
111	TOE OF DYKE	188.300	7913467.681	561121.230
112	TOE OF DYKE	188.300	7913465.383	561137.258
113	TOE OF DYKE	188.300	7913462.532	561157.151
114	TOE OF DYKE	188.300	7913459.680	561177.044
115	TOE OF DYKE	188.300	7913457.160	561194.625
116	TOE OF DYKE	188.300	7913455.343	561195.045
117	TOE OF DYKE	188.300	7913447.798	561183.924
118	TOE OF DYKE	188.300	7913440.253	561172.804
119	TOE OF DYKE	188.300	7913435.730	561167.785
120	TOE OF DYKE	187.895	7913439.358	561167.529
121	TOE OF DYKE	188.050	7913428.311	561155.615
122	TOE OF DYKE	188.207	7913422.856	561154.444
123	TOE OF DYKE	188.300	7913418.180	561150.680
124	TOE OF DYKE	188.300	7913405.728	561141.546
125	TOE OF DYKE	188.300	7913404.788	561138.573
126	TOE OF DYKE	188.300	7913408.523	561123.329
127	TOE OF DYKE	188.300	7913413.281	561103.904
128	TOE OF DYKE	188.300	7913418.040	561084.478
129	TOE OF DYKE	188.300	7913422.798	561065.052
130	TOE OF DYKE	188.300	7913427.557	561045.627
131	TOE OF DYKE	188.300	7913432.316	561026.201
132	TOE OF DYKE	188.300	7913436.050	561010.957
133	TOE OF DYKE	188.300	7913438.257	561008.755
134	TOE OF DYKE	188.300	7913449.312	561006.076
135	TOE OF DYKE	188.300	7913460.367	561003.398
136	TOE OF DYKE	188.300	7913465.640	561000.590
137	TOE OF DYKE	188.300	7913480.906	560968.626
138	TOE OF DYKE	188.300	7913496.663	560970.384
139	TOE OF DYKE	188.300	7913506.105	560963.578
200	TOP OF DYKE	190.100	7913524.417	560973.216
201	TOP OF DYKE	190.100	7913518.855	560995.922
202	TOP OF DYKE	190.100	7913513.237	561018.858
203	TOP OF DYKE	190.100	7913506.782	561033.024
204	TOP OF DYKE	190.100	7913500.187	561042.363
205	TOP OF DYKE	190.100	7913493.593	561051.702
206	TOP OF DYKE	190.100	7913488.954	561060.527
207	TOP OF DYKE	190.100	7913483.478	561075.386
208	TOP OF DYKE	190.100	7913478.002	561090.245
209	TOP OF DYKE	190.100	7913475.482	561099.258
210	TOP OF DYKE	190.100	7913472.141	561116.431
211	TOP OF DYKE	190.100	7913471.244	561121.741
212	TOP OF DYKE	190.100	7913468.897	561138.119
213	TOP OF DYKE	190.100	7913466.045	561156.012
214	TOP OF DYKE	190.100	7913463.194	561177.905
215	TOP OF DYKE	190.100	7913460.724	561195.136
216	TOP OF DYKE	190.100	7913452.364	561197.066
217	TOP OF DYKE	190.100	7913444.819	561185.945
218	TOP OF DYKE	190.100	7913437.274	561174.825
219	TOP OF DYKE	190.100	7913433.647	561170.726

LAYOUT & GRADING POINTS				
TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
220	TOP OF DYKE	190.100	7913426.998	561164.887
221	TOP OF DYKE	190.100	7913422.871	561156.448
222	TOP OF DYKE	190.100	7913413.811	561153.990
223	TOP OF DYKE	190.100	7913403.359	561144.257
224	TOP OF DYKE	190.100	7913401.292	561137.717
225	TOP OF DYKE	190.100	7913405.026	561122.473
226	TOP OF DYKE	190.100	7913409.792	561103.049
227	TOP OF DYKE	190.020	7913411.637	561095.159
228	TOP OF DYKE	190.020	7913414.699	561083.660
229	TOP OF DYKE	190.020	7913417.584	561071.879
230	TOP OF DYKE	190.100	7913419.214	561064.555
231	TOP OF DYKE	190.100	7913424.050	561044.770
232	TOP OF DYKE	190.100	7913428.819	561025.345
233	TOP OF DYKE	190.100	7913432.553	561010.101
234	TOP OF DYKE	190.100	7913437.409	561005.257
235	TOP OF DYKE	190.100	7913448.464	561002.578
236	TOP OF DYKE	190.100	7913459.519	560999.899
237	TOP OF DYKE	190.100	7913463.210	560997.933
238	TOP OF DYKE	190.100	7913478.414	560984.027
239	TOP OF DYKE	190.100	7913496.258	560967.705
240	TOP OF DYKE	190.100	7913503.675	560980.921
300	ROAD EDGE	188.300	7913528.685	560974.311
301	ROAD EDGE	188.300	7913523.323	560997.016
302	ROAD EDGE	188.300	7913517.704	561019.953
303	ROAD EDGE	188.300	7913510.540	561035.677
304	ROAD EDGE	188.300	7913503.945	561045.016
305	ROAD EDGE	188.300	7913497.350	561054.356
306	ROAD EDGE	188.300	7913493.270	561062.118
307	ROAD EDGE	188.300	7913487.718	561077.189
308	ROAD EDGE	188.302	7913482.162	561092.259
309	ROAD EDGE	189.500	7913471.921	561132.528
310	ROAD EDGE	189.500	7913471.044	561138.645
311	ROAD EDGE	189.500	7913468.192	561158.538
312	ROAD EDGE	189.500	7913465.341	561178.431
313	ROAD EDGE	189.500	7913462.902	561195.448
314	ROAD EDGE	189.500	7913450.182	561197.769
315	ROAD EDGE	189.529	7913442.588	561186.576
316	ROAD EDGE	189.769	7913434.871	561175.202
317	ROAD EDGE	190.081	7913427.216	561166.514
318	ROAD EDGE	190.100	7913426.278	561165.637
319	ROAD EDGE	190.100	7913412.953	561153.970
320	ROAD EDGE	189.873	7913408.794	561151.621
321	ROAD EDGE	189.501	7913402.720	561148.618
322	ROAD EDGE	189.200	7913399.109	561134.859
323	ROAD EDGE	189.200	7913400.370	561129.711
324	ROAD EDGE	189.158	7913400.765	561127.748
325	ROAD EDGE	189.000	7913401.357	561124.000
326	ROAD EDGE	189.500	7913402.451	561117.077
327	ROAD EDGE	190.000	7913403.545	561110.154
328	ROAD EDGE	190.574	7913404.602	561102.207
329	ROAD EDGE	190.124	7913408.588	561094.922
330	ROAD EDGE	190.124	7913412.534	561070.640
331	ROAD EDGE	190.574	7913414.319	561063.355
332	ROAD EDGE	190.555	7913414.437	561062.872
333	ROAD EDGE	189.666	7913415.567	561051.153
334	ROAD EDGE	188.500	7913415.027	561039.880
335	ROAD EDGE	187.500	7913414.660	561032.234
336	ROAD EDGE	186.546	7913414.081	561029.162
337	ROAD EDGE	185.801	7913413.387	561005.584
338	ROAD EDGE	185.600	7913413.501	561003.575

LAYOUT & GRADING POINTS				
TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
339	ROAD EDGE	185.534	7913414.990	561002.575
340	ROAD EDGE	186.016	7913426.183	560998.483
341	ROAD EDGE	186.500	7913434.287	560997.641
342	ROAD EDGE	187.000	7913442.249	560998.695
343	ROAD EDGE	187.335	7913449.714	560995.863
344	ROAD EDGE	188.300	7913457.106	560988.134
345	ROAD EDGE	188.300	7913475.366	560980.580
346	ROAD EDGE	188.300	7913493.206	560964.263
347	ROAD EDGE	188.300	7913500.570	560957.527
400	ROAD EDGE	188.180	7913534.713	560975.735
401	ROAD EDGE	188.180	7913529.122	560998.559
402	ROAD EDGE	188.180	7913523.532	561021.380
403	ROAD EDGE	188.180	7913515.441	561039.138
404	ROAD EDGE	188.180	7913508.846	561048.477
405	ROAD EDGE	188.180	7913502.251	561057.816
406	ROAD EDGE	188.180	7913498.900	561064.193
407	ROAD EDGE	188.180	7913493.346	561079.263
408	ROAD EDGE	188.182	7913487.792	561094.334
409	ROAD EDGE	189.380	7913477.786	561133.892
410	ROAD EDGE	189.380	7913476.900	561140.079
411	ROAD EDGE	189.380	7913474.048	561159.972
412	ROAD EDGE	189.380	7913471.197	561179.865
413	ROAD EDGE	189.380	7913467.814	561203.461
414	ROAD EDGE	189.380	7913460.165	561211.786
415	ROAD EDGE	189.380	7913449.640	561207.657
416	ROAD EDGE	189.547	7913439.773	561193.114
417	ROAD EDGE	189.842	7913429.906	561178.571
418	ROAD EDGE	189.981	7913423.249	561171.016
419	ROAD EDGE	190.000	7913410.718	561160.055
420	ROAD EDGE	189.628	7913402.999	561154.795
421	ROAD EDGE	189.279	7913395.592	561148.359
422	ROAD EDGE	189.991	7913376.227	561153.681
423	ROAD EDGE	188.557	7913385.792	561120.122
424	ROAD EDGE	189.000	7913393.742	561122.135
425	ROAD EDGE	189.500	7913395.286	561115.831
426	ROAD EDGE	190.000	7913398.831	561109.528
427	ROAD EDGE	190.694	7913398.974	561100.779
428	ROAD EDGE	190.244	7913400.758	561093.495
429	ROAD EDGE	190.244	7913406.707	561089.213
430	ROAD EDGE	190.694	7913408.491	561081.928
431	ROAD EDGE	190.648	7913408.609	561081.445
432	ROAD EDGE	189.723	7913409.574	561051.440
433	ROAD EDGE	188.500	7913408.936	561038.128
434	ROAD EDGE	187.043	7913408.175	561022.259
435	ROAD EDGE	184.010	7913416.659	560988.132
436	ROAD EDGE	185.350	7913421.139	560993.005
437	ROAD EDGE	186.000	7913430.669	560991.945
438	ROAD EDGE	186.500	7913438.012	560991.128
439	ROAD EDGE	187.000	7913444.042	560990.460
440	ROAD EDGE	187.184	7913449.051	560989.900
441	ROAD EDGE	188.180	7913463.058	560983.707
442	ROAD EDGE	188.180	7913471.317	560978.153
443	ROAD EDGE	188.180	7913489.157	560959.835
444	ROAD EDGE	188.180	7913498.521	560953.100
500	GRADE BREAK	188.032	7913510.894	560965.541
501	GRADE BREAK	188.000	7913505.942	561003.054
502	GRADE BREAK	187.965	7913500.497	561022.312
503	GRADE BREAK	187.957	7913499.325	561026.457
504	GRADE BREAK	187.739	7913479.995	561064.014
505	GRADE BREAK	187.731	7913467.594	561039.742

LAYOUT & GRADING POINTS				
TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
506	GRADE BREAK	187.719	7913493.459	561021.063
507	GRADE BREAK	187.719	7913495.776	561011.642
508	GRADE BREAK	187.724	7913497.789	561001.057
509	GRADE BREAK	187.734	7913501.240	560982.889
510	GRADE BREAK	187.738	7913502.165	560977.323
511	GRADE BREAK	187.768	7913507.943	560975.458
512	GRADE BREAK	188.065	7913512.914	560980.037
513	GRADE BREAK	188.233	7913444.150	561006.571
514	GRADE BREAK	188.064	7913461.295	561007.225
515	GRADE BREAK	187.995	7913469.071	561004.340
516	GRADE BREAK	187.827	7913480.111	560988.881
517	GRADE BREAK	187.742	7913500.845	560981.035
518	GRADE BREAK	188.233	7913410.832	561144.532
519	GRADE BREAK	188.097	7913422.479	561151.891
520	GRADE BREAK	187.740	7913465.825	561111.194
521	GRADE BREAK	187.772	7913464.632	561116.061
522	GRADE BREAK	187.759	7913461.070	561136.202
523	GRADE BREAK	187.753	7913459.395	561145.585
524	GRADE BREAK	187.753	7913455.756	561160.024
525	GRADE BREAK	187.759	7913450.931	561177.315
526	GRADE BREAK	187.753	7913450.304	561177.839
527	GRADE BREAK	188.100	7913449.098	561182.531
528	GRADE BREAK	188.100	7913455.071	561183.751
529	GRADE BREAK	188.100	7913456.894	561181.292
530	GRADE BREAK	188.100	7913456.689	561178.318
531	GRADE BREAK	188.247	7913460.767	561161.258
532	GRADE BREAK	188.288	7913463.699	561147.141
533	GRADE BREAK	187.840	7913445.770	561164.379
534	GRADE BREAK	187.804	7913450.735	561159.368
535	GRADE BREAK	187.850	7913446.923	561155.387
536	GRADE BREAK	188.500	7913440.427	561158.474
537	GRADE BREAK	187.917	7913439.598	561157.312
538	GRADE BREAK	188.500	7913444.216	561183.112
539	GRADE BREAK	189.000	7913436.984	561164.245
540	GRADE BREAK	189.500	7913433.600	561164.877
541	GRADE BREAK	189.500	7913429.426	561159.542
542	GRADE BREAK	189.000	7913434.982	561159.184
543	GRADE BREAK	188.000	7913433.469	561157.122
600	C/L SWALE	186.282	7913508.422	560980.902
601	C/L SWALE	186.628	7913501.275	561001.911
602	C/L SWALE	186.852	7913498.124	561014.778
603	C/L SWALE	186.947	7913496.485	561020.137
604	C/L SWALE	187.307	7913489.122	561040.117
605	C/L SWALE	187.740	7913480.285	561064.150
606	C/L SWALE	187.050	7913452.707	561180.099
607	C/L SWALE	187.084	7913453.813	561175.607
608	C/L SWALE	187.167	7913455.789	561167.585
609	C/L SWALE	187.284	7913458.593	561156.198
610	C/L SWALE	187.433	7913461.421	561141.642
611	C/L SWALE	187.536	7913462.918	561131.202
612	C/L SWALE	187.644	7913464.414	561120.762
613	C/L SWALE	187.740	7913466.120	561111.247
614	C/L SWALE	189.627	7913402.797	561155.017
615	C/L SWALE	189.537	7913409.995	561161.105
616	C/L SWALE	189.419	7913419.036	561169.195
617	C/L SWALE	189.335	7913425.213	561175.093
618	C/L SWALE	189.250	7913430.428	561181.815
619	C/L SWALE	189.050	7913437.584	561192.066
620	C/L SWALE	189.000	7913444.740	561202.320
700	TANK PAD TOE	187.825	7913454.943	561133.774

LAYOUT & GRADING POINTS				
TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
701	TANK PAD TOE	187.853	7913454.698	561123.418
702	TANK PAD TOE	187.928	7913449.105	561114.434
703	TANK PAD TOE	188.027	7913439.980	561109.854
704	TANK PAD TOE	188.129	7913429.383	561110.179
705	TANK PAD TOE	188.194	7913421.468	561115.105
706	TANK PAD TOE	188.222	7913416.335	561124.316
707	TANK PAD TOE	188.194	7913416.632	561134.887
708	TANK PAD TOE	188.128	7913421.511	561143.020
709	TANK PAD TOE	188.027	7913430.526	561148.247
710	TANK PAD TOE	187.926	7913440.827	561148.226
711	TANK PAD TOE	187.852	7913449.940	561142.844
712	TANK PAD TOE	188.300	7913465.700	561085.858
713	TANK PAD TOE	188.134	7913465.746	561075.573
714	TANK PAD TOE	187.927	7913460.813	561066.764
715	TANK PAD TOE	188.027	7913451.657	561061.965
716	TANK PAD TOE	188.127	7913441.251	561062.436
717	TANK PAD TOE	188.195	7913433.011	561067.554
718	TANK PAD TOE	188.222	7913428.017	561076.631
719	TANK PAD TOE	188.195	7913428.257	561086.981
720	TANK PAD TOE	188.127	7913433.193	561095.331
721	TANK PAD TOE	188.027	7913442.208	561100.558
722	TANK PAD TOE	187.926	7913452.509	561100.537
723	TANK PAD TOE	188.134	7913460.987	561094.999
800	SPOT ELEV.	187.827	7913453.016	561078.030
801	SPOT ELEV.	187.827	7913478.257	561037.455
802	SPOT ELEV.	187.827	7913473.499	561056.881
804	SPOT ELEV.	188.027	7913463.590	561013.271
805	SPOT ELEV.	188.027	7913458.832	561032.697
806	SPOT ELEV.	188.027	7913454.073	561052.122
807	SPOT ELEV.	188.227	7913439.406	561027.938
808	SPOT ELEV.	188.227	7913434.647	561047.364
809	SPOT ELEV.	188.227	7913427.510	561076.502
810	SPOT ELEV.	188.227	7913422.751	561095.928
811	SPOT ELEV.	188.227	7913417.992	561115.353
812	SPOT ELEV.	188.227	7913413.234	561134.779
814	SPOT ELEV.	187.827	7913459.223	561115.158
815	SPOT ELEV.	187.827	7913449.706	561154.009

NUNA
NUNA EAST LTD

REDLINE DRAWING

CHANGES, ADDITIONS, DELETIONS AND RELOCATIONS IN RED INK USING STANDARD SYMBOLS, DELETIONS TO BE CLOUDED AND HATCHED.

REDLINE BY: ☑ CONSTRUCTION ☐ COMMISIONING ☐ SUSTAINMENT

NAME/SIGN: BRADFORD WATKINS COMPANY: NUNA

DATE OF AS-BUILT: 9/26/17 ☑ CHECK IF NO CHANGE

CHECKED BY:

NAME/SIGN: COMPANY: Hatch

Released for Use

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date 19/02/01
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

REGISTERED PROFESSIONAL ENGINEER F. BUTTS LICENSED NT/NU

No.	DESCRIPTION	BY	CHK'D	DATE
2	GRADING POINTS ADDED FOR TANK TK-006 PAD	MI	MM	19/01/01
1	GRADING POINTS UPDATED TO SUIT REVISED DYKE AND ACCESS ROAD LAYOUT	SJM	MMI	19-01-18
0	ISSUED FOR CONSTRUCTION	SJM	KML	18-07-25

REVISIONS

ROLE	NAME	SIGNATURE	DATE
DRAFTSPERSON	S. SKINNER	NR	18-07-06
DESIGNER	K. MacLEAN	NR	18-07-06
CHECKER	M. MacINTYRE	Michael MacIntyre	19/02/01
DESIGN COORD.	M. MacINTYRE	Michael MacIntyre	19/02/01
RESP. ENG.	F. BUTTS	F. Butts	19/02/01
LEAD DISC. ENG.	K. MacLEAN	Kevin MacLean	19/02/01
ENG. MANAGER	G. PEACE	Graham Peace	19/02/14
AREA MANAGER	H. VENTER	Hendrik Venter	19/02/15
CLIENT	T. ATIBA		19/02/15

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

Baffinland

MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

MINE SITE
TANK FARM
LAYOUT & GRADING POINTS

DRAWING No.	DRAWING TITLE
H353004-10000-220-272-0009-0001	MINE SITE TANK FARM GRADING PLAN

REFERENCE DRAWINGS

REG. PROFESSIONAL

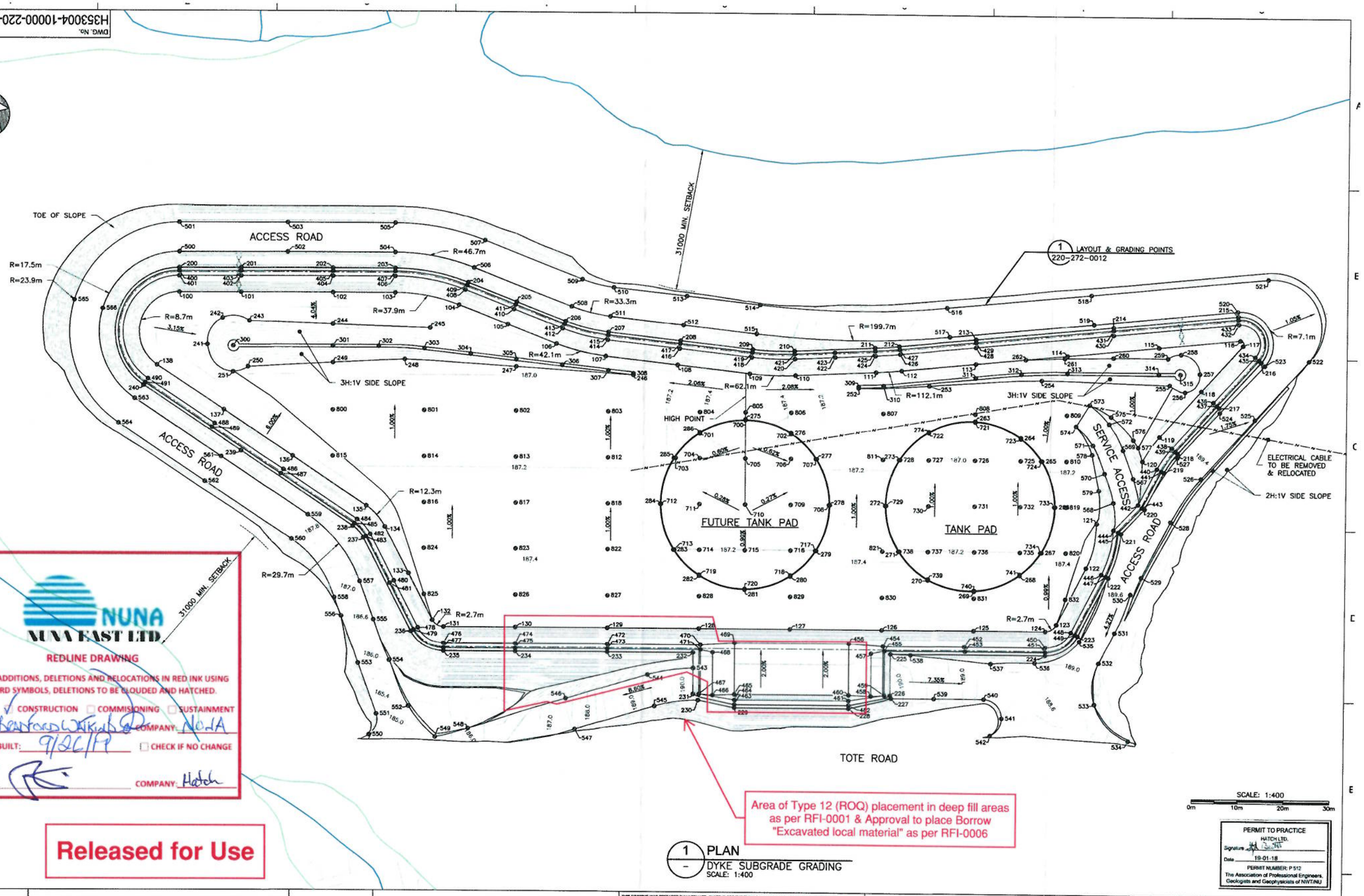
SCALE 1:400 OR AS NOTED

DWG. No. H353004-10000-220-272-0010-0001

REV 2

SHEET SIZE: A1

DWG. No. H353004-10000-220-272-0011-0001



NUNA NUNAVUT EAST LTD.

REDLINE DRAWING

CHANGES, ADDITIONS, DELETIONS AND RELOCATIONS IN RED INK USING STANDARD SYMBOLS, DELETIONS TO BE CLOUDED AND HATCHED.

REDLINE BY: ☑ CONSTRUCTION ☐ COMMISSIONING ☐ SUSTAINMENT

NAME/SIGN: Bradford Watkins COMPANY: N.U.A

DATE OF AS-BUILT: 9/26/19 ☐ CHECK IF NO CHANGE

CHECKED BY:

NAME/SIGN: COMPANY: Hatch

Released for Use

1 PLAN
– DYKE SUBGRADE GRADING
SCALE: 1:400

SCALE: 1:400
0m 10m 20m 30m

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date 19-01-18
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

No.	DESCRIPTION	BY	CHK'D	DATE
1	SUBGRADE TARGETS UPDATED TO SUIT REVISED DYKE AND ACCESS ROAD LAYOUT	SSM	KM	19/01/18
0	ISSUED FOR CONSTRUCTION	SS	MMI	18-07-25

REVISIONS

DRAWING No.	DRAWING TITLE
H353004-10000-220-272-0012-0001	MINE SITE TANK FARM SUBGRADE LAYOUT & GRADING POINTS

REFERENCE DRAWINGS

REGISTERED PROFESSIONAL ENGINEER F. E. BUTTS LICENCE 12170 NT/NU

REG. PROFESSIONAL

HATCH

DRAFTSPERSON	S. SKINNER	NR	18-07-12
DESIGNER	K. MacLEAN	NR	18-07-12
CHECKER	M. MacINTYRE		19/01/18
DESIGN COORD.	M. MacINTYRE		19/01/18
RESP. ENG.	F. BUTTS		19/01/18
LEAD DISC. ENG.	K. MacLEAN		19/01/18
ENG. MANAGER	Glen Peace		19/01/18
PROJ. MANAGER			
CLIENT	T. ATIBA		19/01/24
ROLE	NAME	SIGNATURE	DATE

DRAWING APPROVAL STATUS: Approved for Construction

Baffinland

MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

MINE SITE
TANK FARM
SUBGRADE PLAN

SCALE	DWG. No.	REV
1:400 OR AS NOTED	H353004-10000-220-272-0011-0001	1

SHEET SIZE: A1

DWG. No. H353004-10000-220-272-0012-0001

LAYOUT & GRADING POINTS

TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
100	TOE OF DYKE	187.532	7913520.629	560972.288
101	TOE OF DYKE	187.532	7913517.446	560985.281
102	TOE OF DYKE	187.532	7913512.688	561004.707
103	TOE OF DYKE	187.532	7913509.449	561017.930
104	TOE OF DYKE	187.532	7913503.596	561030.774
105	TOE OF DYKE	187.532	7913497.002	561040.113
106	TOE OF DYKE	187.532	7913490.407	561049.452
107	TOE OF DYKE	187.532	7913485.294	561059.179
108	TOE OF DYKE	187.532	7913479.818	561074.038
109	TOE OF DYKE	187.532	7913474.342	561088.897
110	TOE OF DYKE	187.532	7913471.654	561098.512
111	TOE OF DYKE	187.532	7913468.313	561115.698
112	TOE OF DYKE	187.532	7913467.384	561121.188
113	TOE OF DYKE	187.532	7913465.091	561137.187
114	TOE OF DYKE	187.532	7913462.239	561157.079
115	TOE OF DYKE	187.532	7913459.388	561176.972
116	TOE OF DYKE	187.532	7913456.863	561194.583
117	TOE OF DYKE	187.532	7913455.591	561194.876
118	TOE OF DYKE	187.532	7913448.046	561183.756
119	TOE OF DYKE	187.632	7913440.501	561172.635
120	TOE OF DYKE	187.532	7913436.214	561167.789
121	TOE OF DYKE	187.532	7913425.271	561154.946
122	TOE OF DYKE	187.534	7913416.377	561150.454
123	TOE OF DYKE	187.532	7913405.951	561141.343
124	TOE OF DYKE	187.532	7913405.080	561136.843
125	TOE OF DYKE	187.532	7913408.814	561123.401
126	TOE OF DYKE	187.532	7913413.573	561103.975
127	TOE OF DYKE	187.532	7913418.331	561084.549
128	TOE OF DYKE	187.532	7913423.090	561065.124
129	TOE OF DYKE	187.532	7913427.848	561045.698
130	TOE OF DYKE	187.532	7913432.607	561026.273
131	TOE OF DYKE	187.532	7913436.341	561011.029
132	TOE OF DYKE	187.532	7913438.328	561009.047
133	TOE OF DYKE	187.532	7913449.383	561006.368
134	TOE OF DYKE	187.532	7913460.438	561003.689
135	TOE OF DYKE	187.532	7913465.842	561000.811
136	TOE OF DYKE	187.532	7913480.142	560987.731
137	TOE OF DYKE	187.531	7913493.411	560975.595
138	TOE OF DYKE	187.532	7913506.307	560963.799
200	TOP OF SLOPE	189.688	7913525.801	560973.555
201	TOP OF SLOPE	189.688	7913522.619	560986.548
202	TOP OF SLOPE	189.688	7913517.860	561005.974
203	TOP OF SLOPE	189.688	7913514.621	561019.197
204	TOP OF SLOPE	189.688	7913507.946	561033.846
205	TOP OF SLOPE	189.688	7913501.351	561043.185
206	TOP OF SLOPE	189.688	7913494.757	561052.524
207	TOP OF SLOPE	189.688	7913490.291	561061.020
208	TOP OF SLOPE	189.688	7913484.815	561075.879
209	TOP OF SLOPE	189.688	7913479.339	561090.738
210	TOP OF SLOPE	189.688	7913476.881	561099.529
211	TOP OF SLOPE	189.688	7913473.540	561116.703
212	TOP OF SLOPE	189.688	7913472.655	561121.943
213	TOP OF SLOPE	189.688	7913470.287	561138.460
214	TOP OF SLOPE	189.688	7913466.010	561165.299
215	TOP OF SLOPE	189.688	7913462.134	561195.338
216	TOP OF SLOPE	189.688	7913451.165	561197.868
217	TOP OF SLOPE	189.688	7913443.640	561186.745
218	TOP OF SLOPE	189.688	7913436.095	561175.625
219	TOP OF SLOPE	189.688	7913432.709	561171.799
220	TOP OF SLOPE	189.688	7913425.941	561165.883
221	TOP OF SLOPE	189.688	7913421.954	561159.615
222	TOP OF SLOPE	189.688	7913413.182	561154.689
223	TOP OF SLOPE	189.675	7913402.438	561145.311
224	TOP OF SLOPE	189.685	7913399.897	561137.397
225	TOP OF SLOPE	189.595	7913407.928	561104.637

LAYOUT & GRADING POINTS

TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
226	TOP OF SLOPE	190.221	7913399.211	561102.433
227	TOP OF SLOPE	190.200	7913398.551	561102.505
228	TOP OF SLOPE	190.294	7913398.527	561092.926
229	TOP OF SLOPE	190.294	7913404.471	561068.665
230	TOP OF SLOPE	190.303	7913407.929	561061.278
231	TOP OF SLOPE	190.199	7913409.465	561060.571
232	TOP OF SLOPE	189.688	7913418.214	561062.646
233	TOP OF SLOPE	189.687	7913422.676	561044.431
234	TOP OF SLOPE	189.687	7913427.435	561025.006
235	TOP OF SLOPE	189.687	7913431.189	561009.762
236	TOP OF SLOPE	189.687	7913437.074	561003.872
237	TOP OF SLOPE	189.687	7913459.184	560998.514
238	TOP OF SLOPE	189.687	7913462.248	560996.882
239	TOP OF SLOPE	189.687	7913483.912	560977.068
240	TOP OF SLOPE	189.688	7913502.713	560959.870
241	TOP OF SLOPE	187.025	7913506.067	560975.473
242	TOP OF SLOPE	187.315	7913512.917	560980.062
243	TOP OF SLOPE	187.282	7913510.894	560985.541
244	TOP OF SLOPE	187.250	7913505.942	561003.054
245	TOP OF SLOPE	187.213	7913500.151	561023.535
246	TOP OF SLOPE	186.900	7913479.972	561064.078
247	TOP OF SLOPE	186.981	7913487.595	561039.743
248	TOP OF SLOPE	186.967	7913494.791	561016.485
249	TOP OF SLOPE	186.974	7913497.788	561001.057
250	TOP OF SLOPE	186.984	7913501.240	560982.889
251	TOP OF SLOPE	187.000	7913500.958	560979.498
252	TOP OF SLOPE	186.900	7913465.825	561111.194
253	TOP OF SLOPE	187.016	7913462.769	561126.322
254	TOP OF SLOPE	187.000	7913458.339	561150.392
255	TOP OF SLOPE	187.008	7913450.930	561177.319
256	TOP OF SLOPE	187.250	7913448.659	561180.236
257	TOP OF SLOPE	187.350	7913451.825	561184.337
258	TOP OF SLOPE	187.350	7913456.894	561181.282
259	TOP OF SLOPE	187.350	7913456.669	561178.318
260	TOP OF SLOPE	187.477	7913458.534	561166.712
261	TOP OF SLOPE	187.515	7913461.869	561156.379
262	TOP OF SLOPE	187.532	7913463.522	561148.053
263	TOP OF SLOPE	187.092	7913452.998	561134.224
264	TOP OF SLOPE	187.127	7913447.200	561143.100
265	TOP OF SLOPE	187.177	7913441.259	561146.463
266	TOP OF SLOPE	187.277	7913430.848	561146.933
267	TOP OF SLOPE	187.377	7913421.833	561141.706
268	TOP OF SLOPE	187.427	7913418.115	561135.975
269	TOP OF SLOPE	187.482	7913417.076	561125.425
270	TOP OF SLOPE	187.438	7913421.756	561116.275
271	TOP OF SLOPE	187.377	7913429.248	561111.437
272	TOP OF SLOPE	187.277	7913439.658	561110.958
273	TOP OF SLOPE	187.177	7913448.673	561116.197
274	TOP OF SLOPE	187.116	7913453.078	561123.948
275	TOP OF SLOPE	187.539	7913464.916	561085.665
276	TOP OF SLOPE	187.373	7913459.688	561094.680
277	TOP OF SLOPE	187.177	7913452.941	561098.773
278	TOP OF SLOPE	187.277	7913442.530	561099.243
279	TOP OF SLOPE	187.377	7913433.515	561094.016
280	TOP OF SLOPE	187.433	7913429.421	561087.208
281	TOP OF SLOPE	187.482	7913428.951	561076.855
282	TOP OF SLOPE	187.433	7913434.179	561087.840
283	TOP OF SLOPE	187.377	7913440.930	561083.747
284	TOP OF SLOPE	187.277	7913451.340	561083.278
285	TOP OF SLOPE	187.177	7913460.355	561088.507
286	TOP OF SLOPE	187.374	7913464.446	561075.255
300	SWALE C/L	185.532	7913506.434	560980.851
301	SWALE C/L	185.878	7913501.275	561001.911
302	SWALE C/L	186.050	7913498.898	561011.624
303	SWALE C/L	186.219	7913496.079	561021.229

LAYOUT & GRADING POINTS

TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
304	SWALE C/L	186.388	7913492.602	561030.674
305	SWALE C/L	186.558	7913489.122	561040.117
306	SWALE C/L	186.728	7913485.642	561049.560
307	SWALE C/L	186.898	7913482.162	561059.003
308	SWALE C/L	186.890	7913480.285	561084.150
309	SWALE C/L	186.995	7913465.137	561111.298
310	SWALE C/L	186.836	7913463.091	561116.595
311	SWALE C/L	186.735	7913462.163	561136.409
312	SWALE C/L	186.637	7913460.681	561148.397
313	SWALE C/L	186.534	7913458.590	561158.187
314	SWALE C/L	186.334	7913453.813	561175.607
315	SWALE C/L	186.301	7913452.697	561180.140
400	DYKE GRADE BREAK	189.350	7913525.146	560973.395
401	DYKE GRADE BREAK	189.350	7913524.128	560973.145
402	DYKE GRADE BREAK	189.350	7913520.943	560986.138
403	DYKE GRADE BREAK	189.350	7913521.963	560986.388
404	DYKE GRADE BREAK	189.350	7913518.184	561005.583
405	DYKE GRADE BREAK	189.350	7913517.204	561005.813
406	DYKE GRADE BREAK	189.350	7913512.945	561018.787
407	DYKE GRADE BREAK	189.350	7913513.965	561019.037
408	DYKE GRADE BREAK	189.350	7913508.537	561032.851
409	DYKE GRADE BREAK	189.350	7913507.305	561033.457
410	DYKE GRADE BREAK	189.350	7913499.942	561042.100
411	DYKE GRADE BREAK	189.350	7913500.800	561042.706
412	DYKE GRADE BREAK	189.350	7913493.348	561051.529
413	DYKE GRADE BREAK	189.350	7913494.205	561052.135
414	DYKE GRADE BREAK	189.350	7913488.872	561060.424
415	DYKE GRADE BREAK	189.350	7913489.657	561060.787
416	DYKE GRADE BREAK	189.350	7913483.198	561075.283
417	DYKE GRADE BREAK	189.350	7913484.181	561075.646
418	DYKE GRADE BREAK	189.350	7913477.720	561090.142
419	DYKE GRADE BREAK	189.350	7913478.705	561090.505
420	DYKE GRADE BREAK	189.350	7913475.188	561099.109
421	DYKE GRADE BREAK	189.350	7913476.218	561099.400
422	DYKE GRADE BREAK	189.350	7913473.517	561107.786
423	DYKE GRADE BREAK	189.350	7913474.548	561107.987
424	DYKE GRADE BREAK	189.350	7913471.848	561116.373
425	DYKE GRADE BREAK	189.350	7913472.877	561116.574
426	DYKE GRADE BREAK	189.350	7913470.947	561121.698
427	DYKE GRADE BREAK	189.350	7913471.987	561121.847
428	DYKE GRADE BREAK	189.350	7913469.604	561138.047
429	DYKE GRADE BREAK	189.350	7913469.629	561138.298
430	DYKE GRADE BREAK	189.350	7913464.327	561167.886
431	DYKE GRADE BREAK	189.350	7913465.352	561168.137
432	DYKE GRADE BREAK	189.350	7913460.427	561195.093
433	DYKE GRADE BREAK	189.350	7913461.466	561195.242
434	DYKE GRADE BREAK	189.350	7913452.612	561196.897
435	DYKE GRADE BREAK	189.350	7913451.743	561197.487
436	DYKE GRADE BREAK	189.350	7913445.067	561185.777
437	DYKE GRADE BREAK	189.350	7913444.198	561186.368
438	DYKE GRADE BREAK	189.350	7913437.522	561174.658
439	DYKE GRADE BREAK	189.350	7913436.653	561175.248
440	DYKE GRADE BREAK	189.350	7913433.845	561170.500
441	DYKE GRADE BREAK	189.350	7913433.154	561171.291
442	DYKE GRADE BREAK	189.350	7913427.106	561164.690
443	DYKE GRADE BREAK	189.350	7913426.391	561165.381
444	DYKE GRADE BREAK	189.350	7913423.069	561158.198
445	DYKE GRADE BREAK	189.350	7913422.380	561159.073
446	DYKE GRADE BREAK	189.350	7913414.272	561153.385
447	DYKE GRADE BREAK	189.352	7913413.585	561154.188
448	DYKE GRADE BREAK	189.350	7913403.582	561144.054
449	DYKE GRADE BREAK	189.350	7913402.866	561144.822
450	DYKE GRADE BREAK	189.350	7913401.580	561137.893
451	DYKE GRADE BREAK	189.350	7913400.578	561137.582
452	DYKE GRADE BREAK	189.350	7913405.784	561120.840

LAYOUT & GRADING POINTS

TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
453	DYKE GRADE BREAK	189.350	7913404.747	561120.543
454	DYKE GRADE BREAK	189.349	7913409.992	561103.483
455	DYKE GRADE BREAK	189.350	7913408.916	561103.523
456	DYKE GRADE BREAK	189.108	7913412.243	561096.308
457	DYKE GRADE BREAK	189.690	7913409.026	561100.513
458	DYKE GRADE BREAK	189.832	7913400.002	561098.303
459	DYKE GRADE BREAK	189.748	7913399.508	561101.219
460	DYKE GRADE BREAK	189.332	7913401.384	561093.643
461	DYKE GRADE BREAK	189.944	7913400.174	561093.351
462	DYKE GRADE BREAK	189.944	7913399.213	561093.093
463	DYKE GRADE BREAK	189.944	7913405.146	561068.830
464	DYKE GRADE BREAK	189.944	7913406.122	561069.069
465	DYKE GRADE BREAK	189.332	7913407.312	561069.361
466	DYKE GRADE BREAK	189.832	7913408.258	561064.599
467	DYKE GRADE BREAK	189.832	7913409.168	561061.785
468	DYKE GRADE BREAK	189.090	7913417.261	561066.612
469	DYKE GRADE BREAK	189.108	7913418.191	561072.026
470	DYKE GRADE BREAK	189.350	7913419.502	561064.840
471	DYKE GRADE BREAK	189.350	7913418.484	561064.379
472	DYKE GRADE BREAK	189.350	7913424.352	561044.842
473	DYKE GRADE BREAK	189.350	7913423.332	561044.592
474	DYKE GRADE BREAK	189.350	7913429.110	561025.416
475	DYKE GRADE BREAK	189.350	7913428.091	561025.168
476	DYKE GRADE BREAK	189.350	7913432.845	561010.172
477	DYKE GRADE BREAK	189.350	7913431.825	561009.922
478	DYKE GRADE BREAK	189.350	7913437.480	561005.548
479	DYKE GRADE BREAK	189.350	7913437.233	561004.529
480	DYKE GRADE BREAK	189.350	7913448.535	561002.808
481	DYKE GRADE BREAK	189.350	7913448.288	561001.849
482	DYKE GRADE BREAK	189.350	7913459.590	561000.180
483	DYKE GRADE BREAK	189.350	7913459.343	560999.170
484	DYKE GRADE BREAK	189.350	7913463.413	560998.155
485	DYKE GRADE BREAK	189.350	7913462.704	560997.380
486	DYKE GRADE BREAK	189.350	7913477.712	560985.075
487	DYKE GRADE BREAK	189.350	7913477.004	560984.300
488	DYKE GRADE BREAK	189.350	7913490.981	560972.938
489	DYKE GRADE BREAK	189.350	7913490.272	560972.164
490	DYKE GRADE BREAK	189.350	7913503.877	560961.143
491	DYKE GRADE BREAK	189.350	7913503.169	560960.368
500	GRADE BREAK	187.944	7913529.176	560974.382
501	GRADE BREAK	187.830	7913535.393	560975.905
502	GRADE BREAK	187.944	7913523.588	560997.203
503	GRADE BREAK	187.830	7913529.802	560998.728
504	GRADE BREAK	187.944	7913517.998	561020.024
505	GRADE BREAK	187.830	7913524.212	561021.547
506	GRADE BREAK	187.944	7913510.785	561035.850
507	GRADE BREAK	187.830	7913516.013	561039.542
508	GRADE BREAK	187.944	7913497.595	561054.529
509	GRADE BREAK	187.831	7913502.823	561058.220
510	GRADE BREAK	187.830	7913499.557	561064.435
511	GRADE BREAK	187.944	7913493.551	561062.222
512	GRADE BREAK	187.944	7913487.997	561077.292
513	GRADE BREAK	187.830	7913494.003	561079.505
514	GRADE BREAK	187.835	7913488.449	561094.576
515	GRADE BREAK	187.947	7913482.443	561092.363
516	GRADE BREAK	189.030	7913478.479	561133.891
517	GRADE BREAK	189.144	7913472.144	561133.083
518	GRADE BREAK	189.030	7913474.007	561165.195
519	GRADE BREAK	189.144	7913467.871	561164.287
520	GRADE BREAK	189.144	7913483.190	561185.491
521	GRADE BREAK	189.028	7913468.507	561203.561
522	GRADE BREAK	189.029	7913449.091	561208.050
523	GRADE BREAK	189.144	7913450.295	561198.409
524	GRADE BREAK	189.278	7913442.587	561186.657
525	GRADE BREAK	189.106	7913439.318	561193.688

LAYOUT & GRADING POINTS

TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
526	GRADE BREAK	189.499	7913429.574	561179.328
527	GRADE BREAK	189.425	7913438.240	561175.379
528	GRADE BREAK	189.650	7913421.937	561170.718
529	GRADE BREAK	189.652	7913411.835	561161.716
530	GRADE BREAK	189.602	7913408.642	561158.594
531	GRADE BREAK	189.189	7913401.274	561153.301
532	GRADE BREAK	188.929	7913385.592	561148.359
533	GRADE BREAK	188.715	7913387.121	561145.411
534	GRADE BREAK	189.200	7913377.713	561150.785
535	GRADE BREAK	189.200	7913401.218	561145.393
536	GRADE BREAK	188.843	7913398.848	561134.795
537	GRADE BREAK	188.712	7913400.684	561125.402
538	GRADE BREAK	188.600	7913406.716	561108.850
539	GRADE BREAK	189.487	7913398.328	561111.578
540	GRADE BREAK	188.698	7913383.742	561122.135
541	GRADE BREAK	188.548	7913388.791	561124.984
542	GRADE BREAK	188.229	7913385.749	561121.670
543	GRADE BREAK	190.039	7913414.802	561061.885
544	GRADE BREAK	189.400	7913415.825	561051.881
545	GRADE BREAK	189.400	7913408.888	561051.753
546	GRADE BREAK	187.395	7913414.842	561033.291
547	GRADE BREAK	187.585	7913408.018	561033.630
548	GRADE BREAK	186.050	7913413.639	561010.852
549	GRADE BREAK	185.250	7913413.501	561003.575
550	GRADE BREAK	184.000	7913417.402	560989.589
551	GRADE BREAK	185.007	7913421.381	560992.244
552	GRADE BREAK	185.400	7913421.346	560999.515
553	GRADE BREAK	185.800	7913433.606	560990.951
554	GRADE BREAK	186.000	7913431.083	560997.758
555	GRADE BREAK	186.800	7913441.408	560996.466
556	GRADE BREAK	186.600	7913443.905	560989.790
557	GRADE BREAK	187.162	7913450.155	560995.514
558	GRADE BREAK	186.783	7913448.080	560989.274
559	GRADE BREAK	187.843	7913468.808	560987.913
560	GRADE BREAK	187.628	7913462.588	560983.190
561	GRADE BREAK	187.944	7913483.637	560972.609
562	GRADE BREAK	187.830	7913479.317	560967.887
563	GRADE BREAK	187.944	7913500.368	560957.306
564	GRADE BREAK	187.828	7913498.048	560952.583
565	GRADE BREAK	187.827	7913524.366	560949.659
566	GRADE BREAK	187.944	7913521.103	560955.165
567	GRADE BREAK	188.800	7913433.029	561164.930
568	GRADE BREAK	188.800	7913428.871	561159.524
569	GRADE BREAK	188.200	7913439.520	561164.182
570	GRADE BREAK	188.200	7913435.614	561159.118
571	GRADE BREAK	187.800	7913442.078	561158.032
572	GRADE BREAK	187.800	7913445.722	561162.511
573	GRADE BREAK	187.054	7913450.735	561159.368
574	GRADE BREAK	187.101	7913446.898	561155.402
575	GRADE BREAK	187.079	7913447.140	561163.318
576	GRADE BREAK	187.129	7913441.154	561168.858
577	GRADE BREAK	187.145	7913439.358	561167.529
578	GRADE BREAK	187.200	7913440.127	561157.305
579	GRADE BREAK	187.240	7913432.203	561158.894
700	TANK PAD SPOT ELEV.	187.302	7913464.747	561085.624
701	TANK PAD SPOT ELEV.	187.198	7913494.246	561075.206
702	TANK PAD SPOT ELEV.	187.198	7913458.487	561094.631
703	TANK PAD SPOT ELEV.	187.005	7913400.257	561068.907
704	TANK PAD SPOT ELEV.	187.150	7913450.027	561073.927
705	TANK PAD SPOT ELEV.	187.192	7913458.648	561083.840
706	TANK PAD SPOT ELEV.	187.146	7913454.289	561093.353
707	TANK PAD SPOT ELEV.	187.001	7913452.890	561098.571
708	TANK PAD SPOT ELEV.	187.101	7913442.572	561099.072
709	TANK PAD SPOT ELEV.	187.101	7913444.556	561090.974
710	TANK PAD SPOT ELEV.	187.111	7913446.935	561081.251

LAYOUT & GRADING POINTS

TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
711	TANK PAD SPOT ELEV.	187.101	7913449.314	561071.548
712	TANK PAD SPOT ELEV.	187.101	7913451.298	561063.449
713	TANK PAD SPOT ELEV.	187.201	7913440.880	561063.950
714	TANK PAD SPOT ELEV.	187.201	7913439.602	561069.169
715	TANK PAD SPOT ELEV.	187.201	7913437.222	561078.881
716	TANK PAD SPOT ELEV.	187.201	7913434.843	561088.594
717	TANK PAD SPOT ELEV.	187.201	7913433.585	561093.813
718	TANK PAD SPOT ELEV.	187.255	7913429.825	561087.316
719	TANK PAD SPOT ELEV.	187.255	7913434.383	561067.890
720	TANK PAD SPOT ELEV.	187.284	7913429.124	561076.898
721	TANK PAD SPOT ELEV.	186.918	7913452.829	561134.183
722	TANK PAD SPOT ELEV.	186.942	7913452.882	561123.900
723	TANK PAD SPOT ELEV.	186.953	7913446.967	561143.047
724	TANK PAD SPOT ELEV.	187.001	7913441.308	561146.261
725	TANK PAD SPOT ELEV.	187.001	7913442.372	561141.917
726	TANK PAD SPOT ELEV.	187.001	7913444.752	561132.204
727	TANK PAD SPOT ELEV.	187.001	7913447.131	561122.491
728	TANK PAD SPOT ELEV.	187.001	7913448.623	561116.399
729	TANK PAD SPOT ELEV.	187.101	7913439.616	561111.139
730	TANK PAD SPOT ELEV.	187.101	7913437.418	561120.112
731	TANK PAD SPOT ELEV.	187.101	7913435.039	561129.825
732	TANK PAD SPOT ELEV.	187.101	7913432.659	561139.538
733	TANK PAD SPOT ELEV.	187.101	7913430.890	561146.762
734	TANK PAD SPOT ELEV.	187.201	7913421.882	561141.503
735	TANK PAD SPOT ELEV.	187.201	7913422.947	561137.158
736	TANK PAD SPOT ELEV.	187.201	7913425.326	561127.446
737	TANK PAD SPOT ELEV.	187.201	7913427.705	561117.733
738	TANK PAD SPOT ELEV.	187.201	7913429.198	561111.640
739	TANK PAD SPOT ELEV.	187.260	7913421.954	561116.324
740	TANK PAD SPOT ELEV.	187.284	7913417.248	561125.487
741	TANK PAD SPOT ELEV.	187.251	7913418.329	561136.027
800	SPOT ELEV.	187.077	7913487.774	560998.604
801	SPOT ELEV.	187.077	7913483.016	561018.030
802	SPOT ELEV.	187.077	7913478.257	561037.455
803	SPOT ELEV.	187.077	7913473.499	561056.881
804	SPOT ELEV.	187.379	7913468.740	561076.307
805	SPOT ELEV.	187.544	7913466.361	561086.019
806	SPOT ELEV.	187.378	7913463.982	561095.732
807	SPOT ELEV.	187.068	7913459.223	561115.158
808	SPOT ELEV.	187.077	7913454.464	561134.583
809	SPOT ELEV.	187.076	7913449.706	561154.009
810	SPOT ELEV.	187.177	7913439.893	561151.630
811	SPOT ELEV.	187.189	7913449.510	561112.779
812	SPOT ELEV.	187.177	7913463.786	561054.502
813	SPOT ELEV.	187.177	7913468.544	561035.076
814	SPOT ELEV.	187.177	7913473.303	561015.650
815	SPOT ELEV.	187.240	7913478.062	560996.225
816	SPOT ELEV.	187.277	7913483.590	561013.271
817	SPOT ELEV.	187.277	7913458.832	561032.697
818	SPOT ELEV.	187.277	7913454.073	561052.122
819	SPOT ELEV.	187.277	7913430.280	561149.251
820	SPOT ELEV.	187.377	7913420.567	561146.871
821	SPOT ELEV.	187.377	7913430.084	561108.020
822	SPOT ELEV.	187.377	7913444.360	561049.743
823	SPOT ELEV.	187.377	7913449.119	561030.317
824	SPOT ELEV.	187.377	7913453.877	561010.892
825	SPOT ELEV.	187.477	7913444.150	561008.571
826	SPOT ELEV.	187.472	7913439.406	561027.938
827	SPOT ELEV.	187.473	7913434.647	561047.364
828	SPOT ELEV.	187.474	7913429.889	561066.789
829	SPOT ELEV.	187.471	7913425.130	561086.215
830	SPOT ELEV.	187.473	7913420.372	561105.641
831	SPOT ELEV.	187.474	7913415.613	561125.066
832	SPOT ELEV.	187.483	7913410.854	561144.492

NUNA
NUNA EAST LTD
REDLINE DRAWING
CHANGES, ADDITIONS, DELETIONS AND RELOCATIONS IN RED INK USING STANDARD SYMBOLS, DELETIONS TO BE CLOUDED AND HATCHED.
REDLINE BY: ✓ CONSTRUCTION ☐ COMMISSIONING ☐ SUSTAINMENT
NAME/SIGN: BRADFORD WATKINS COMPANY: NUNA
DATE OF AS-BUILT: 9/26/18 ☐ CHECK IF NO CHANGE
CHECKED BY:
NAME/SIGN: COMPANY: Hatch

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date 19-01-18
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

Released for Use

DRAWING No.	DRAWING TITLE
H353004-10000-220-272-0011-0001	MINE SITE TANK FARM SUBGRADE PLAN

REFERENCE DRAWINGS

REGISTERED PROFESSIONAL ENGINEER F.E. BUTTS LICENSEE NT/NU

REG. PROFESSIONAL

No.	DESCRIPTION	BY	CHK'D	DATE
1	SUBGRADE TARGETS REVISED TO SUIT DYKE LAYOUT	SJM	MMI	19/01/18
0	ISSUED FOR CONSTRUCTION	SS	MMI	18-07-25

REVISIONS

HATCH

ROLE	NAME	SIGNATURE	DATE
DRAFTSPERSON	S. SKINNER	NR	18-07-12
DESIGNER	K. MacLEAN	NR	18-07-12
CHECKER	M. MacINTYRE	Michael MacIntyre	19/01/18
DESIGN COORD.	M. MacINTYRE	Michael MacIntyre	19/01/18
RESP. ENG.	F. BUTTS	F. Butts	19/01/18
LEAD DISC. ENG.	K. MacLEAN		19/01/18
ENG. MANAGER	Glen Peace		19/01/22
PROJ. MANAGER			
CLIENT	T. ATIBA		19/01/23

DRAWING APPROVAL STATUS: Approved for Construction

Baffinland

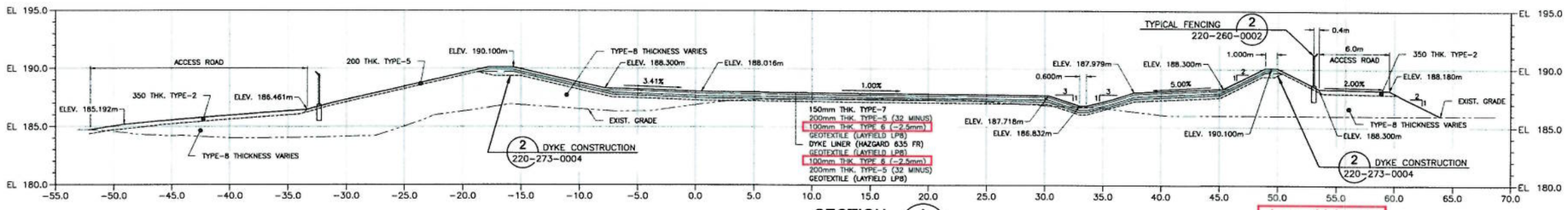
MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

MINE SITE
TANK FARM SUBGRADE
LAYOUT & GRADING POINTS

SCALE 1:400 OR AS NOTED | DWG. No. H353004-10000-220-272-0012-0001 | REV 1

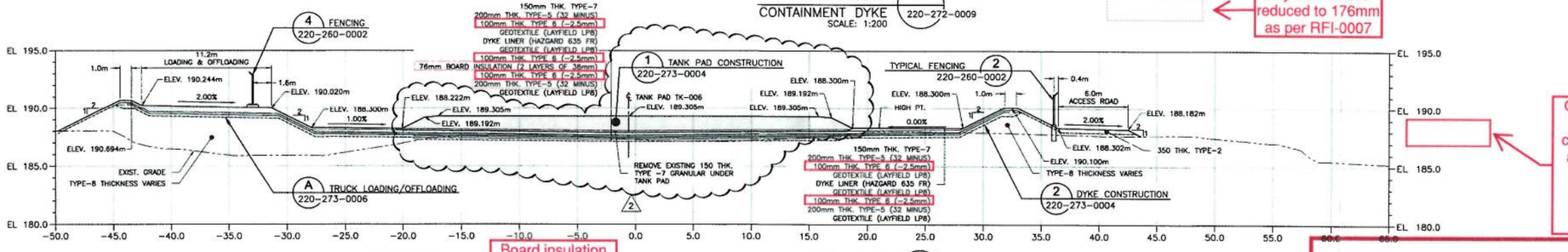
SHEET SIZE: A1

DWG. No. H353004-10000-220-273-0001-0001



SECTION A CONTAINMENT DYKE 220-272-0009
SCALE: 1:200

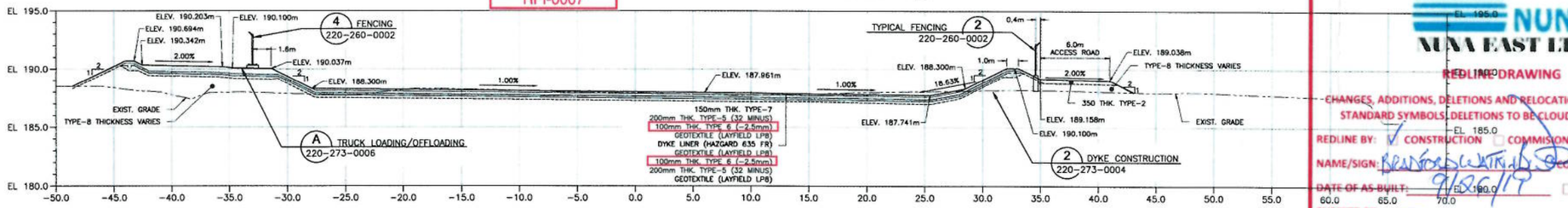
Layer thickness reduced to 176mm as per RFI-0007



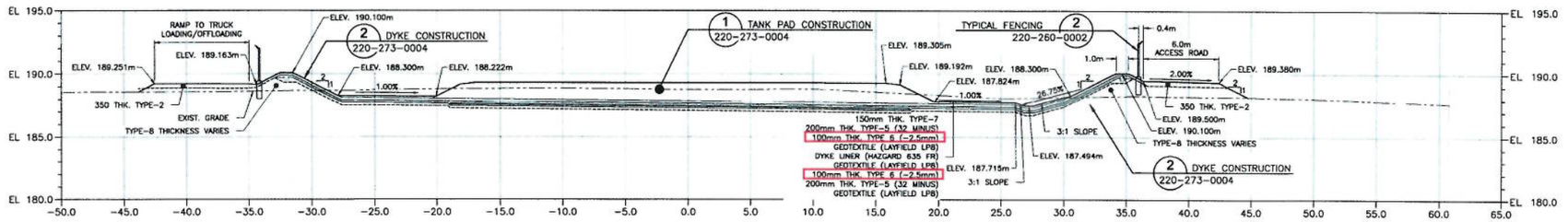
SECTION B CONTAINMENT DYKE 220-272-0009
SCALE: 1:200

Board insulation thickness changed to 50mm as per RFI-0007

Option of areas of Type 6 material changed to Type 9 as per RFI-001 & Site screened material acceptability per RFI-0005



SECTION C CONTAINMENT DYKE 220-272-0009
SCALE: 1:200



SECTION D CONTAINMENT DYKE 220-272-0009
SCALE: 1:200

NUNA EAST LTD

REDLINE DRAWING

CHANGES, ADDITIONS, DELETIONS AND RELOCATIONS IN RED INK USING STANDARD SYMBOLS. DELETIONS TO BE CLOUDED AND HATCHED.

REDLINE BY: ☑ CONSTRUCTION ☐ COMMISSIONING ☐ SUSTAINMENT
NAME/SIGN: COMPANY: NUNA
DATE OF AS BUILT: 9/06/19 ☐ CHECK IF NO CHANGE
CHECKED BY:
NAME/SIGN: COMPANY: Hatch

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date 19/02/01
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

Released for Use

REGISTERED PROFESSIONAL ENGINEER T. BUTTS LICENSEE NT/NU

THIS DRAWING WAS PREPARED BY HATCH LTD. ("HATCH") FOR THE EXCLUSIVE USE OF BAFFINLAND IRON MINES LP ("CLIENT") AND ITS USE IS SUBJECT TO THE TERMS AND CONDITIONS OF THE CONTRACT BETWEEN HATCH AND THE CLIENT, INCLUDING ANY LIMITATIONS ON LIABILITY CONTAINED THEREIN. THIS DRAWING AND ITS CONTENTS REMAIN THE INTELLECTUAL PROPERTY OF HATCH SUBJECT TO CLIENT'S ROYALTY-FREE, IRREVOCABLE, PERPETUAL AND NON-EXCLUSIVE LICENSE TO USE AND REPRODUCE THE DRAWING. ALL RIGHTS RESERVED. IN CONNECTION WITH THE PROJECT, INCLUDING THE CONSTRUCTION, COMPLETION, MAINTENANCE, OPERATION, REPAIR AND REMOVAL AND RELATED ACTIVITIES THEREOF. THIS DRAWING, AND THE INFORMATION CONTAINED HEREIN, SHALL BE TREATED AS CONFIDENTIAL FOR ALL OTHER PURPOSES AND SHALL NOT BE MODIFIED WITHOUT THE WRITTEN CONSENT OF HATCH.

HATCH

ROLE	NAME	SIGNATURE	DATE
DRAFTSPERSON	S. SKINNER	NR	18-07-06
DESIGNER	K. MacLEAN	NR	18-07-06
CHECKER	M. MacINTYRE		19/02/01
DESIGN COORD.	M. MacINTYRE		19/02/01
RESP. ENG.	F. BUTTS		19/02/01
LEAD DISC. ENG.	K. MacLEAN		19/02/01
ENG. MANAGER	G. PEACE		19/02/01
AREA MANAGER	H. NEUFER		19/02/15
CLIENT	T. ATIBA		19/02/15

Baffinland

MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

MINE SITE
TANK FARM DYKE
SECTIONS A TO D

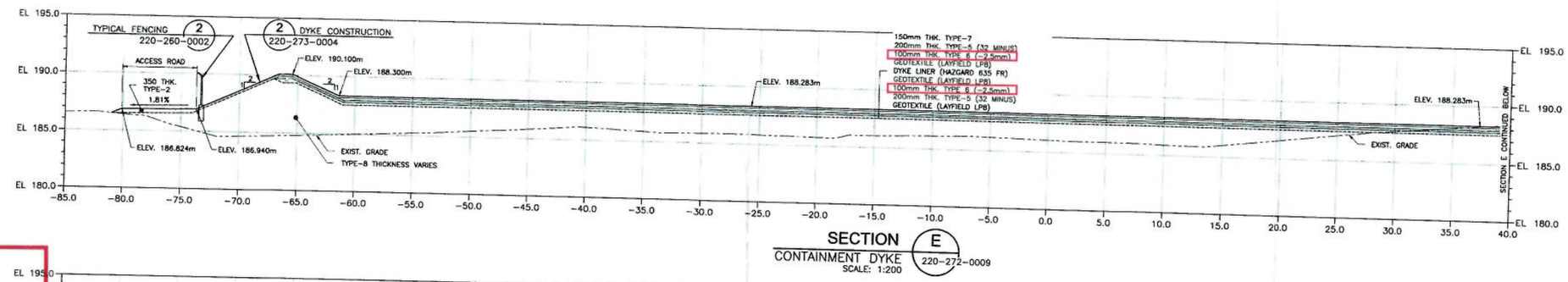
REFERENCE DRAWINGS	
DRAWING No.	DRAWING TITLE
H353004-10000-220-273-0004-0001	MINE SITE DYKE SECTIONS & DETAILS
H353004-10000-220-272-0009-0001	MINE SITE TANK FARM GRADING PLAN
H353004-10000-220-260-0002-0001	MINE SITE TANK FARM DYKE MISCELLANEOUS DETAILS

REVISIONS				
No.	DESCRIPTION	BY	CHK'D	DATE
2	TANK PAD ADDED TO SECTION B	SJM	MM	19/01/04
1	SECTIONS UPDATED TO SUIT REVISED DYKE AND ACCESS ROAD LAYOUT, LINER TYPE REVISED	SJM	MMI	19-01-18
0	ISSUED FOR CONSTRUCTION	SJM	KML	18-07-25

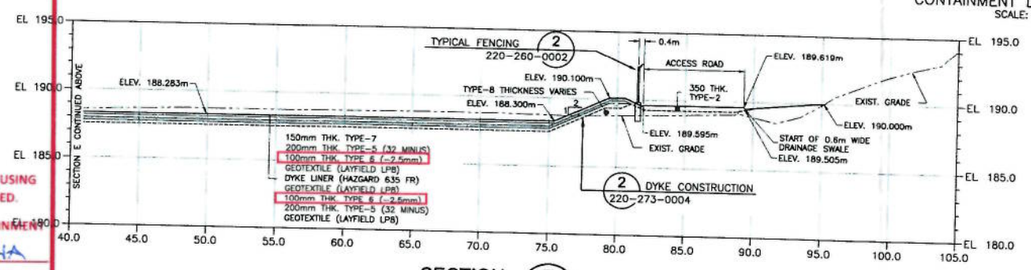
DRAWING APPROVAL STATUS: Approved for Construction

SCALE: 1:200 OR AS NOTED
DWG. No. H353004-10000-220-273-0001-0001
REV 2
SHEET SIZE: A1

DWG. No. H353004-10000-220-273-0002-0001

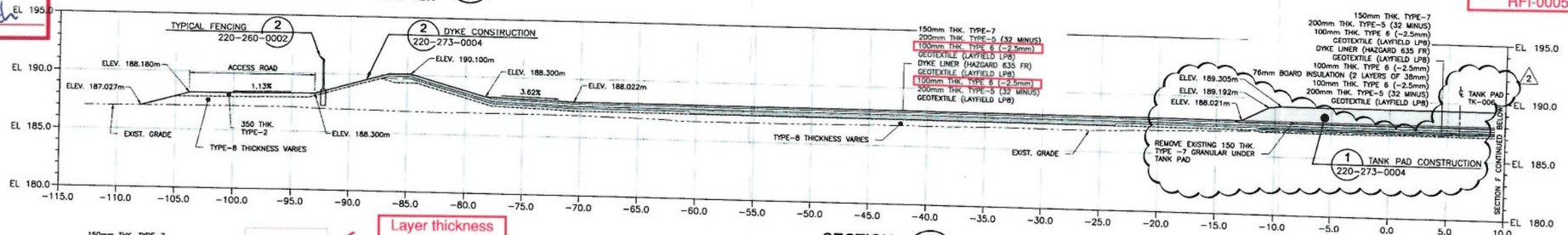


SECTION E CONTAINMENT DYKE 220-272-0009
SCALE: 1:200



SECTION E CONTAINMENT DYKE 220-272-0009
SCALE: 1:200

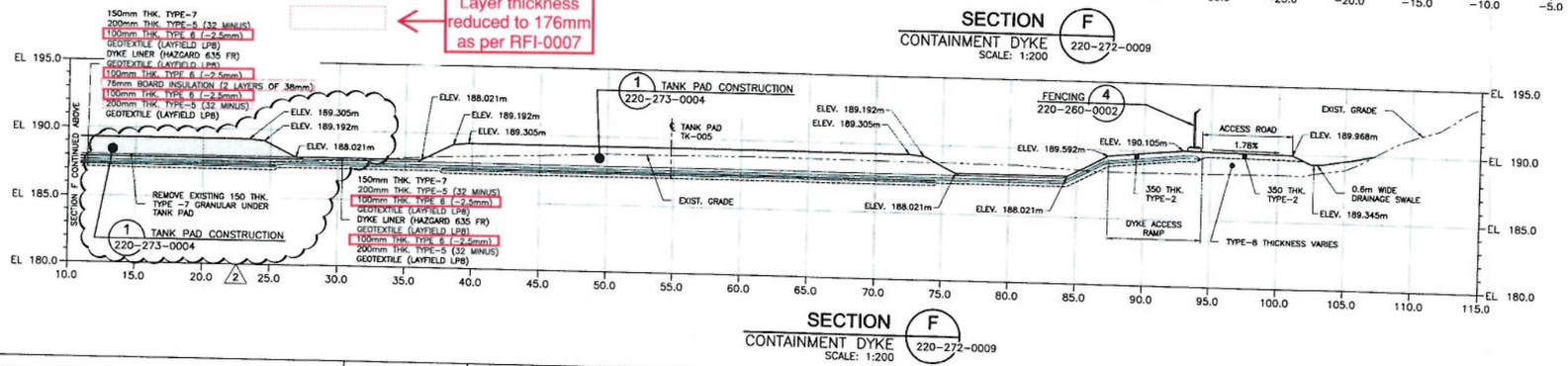
Option of areas of Type 6 material changed to Type 9 as per RFI-001 & Site screened material acceptability per RFI-0005



SECTION F CONTAINMENT DYKE 220-272-0009
SCALE: 1:200

Board insulation thickness changed to 50mm as per RFI-0007

Layer thickness reduced to 176mm as per RFI-0007



SECTION F CONTAINMENT DYKE 220-272-0009
SCALE: 1:200

NUNA NUNAVEAST LTD

REDLINE DRAWING

CHANGES, ADDITIONS, DELETIONS AND RELOCATIONS IN RED INK USING STANDARD SYMBOLS, DELETIONS TO BE CLOUDED AND HATCHED.

REDLINE BY: ☐ CONSTRUCTION ☐ COMMISIONING ☐ SUSTAINMENT

NAME/SIGN: BRANDON WATKINS COMPANY: NUNA

DATE OF AS-BUILT: 7/2C/19 ☐ CHECK IF NO CHANGE

CHECKED BY:

NAME/SIGN: COMPANY:

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date 19/02/01
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

Released for Use

DRAWING No.	DRAWING TITLE
H353004-10000-220-273-0004-0001	MINE SITE DYKE SECTIONS & DETAILS
H353004-10000-220-272-0009-0001	MINE SITE TANK FARM GRADING PLAN
H353004-10000-220-280-0002-0001	MINE SITE TANK FARM DYKE MISCELLANEOUS DETAILS

REFERENCE DRAWINGS

REG. PROFESSIONAL

No.	DESCRIPTION	BY	CHK'D	DATE
2	TANK PAD ADDED TO SECTION B	SJM	MMI	19-01-18
1	SECTIONS UPDATED TO SUIT REVISED DYKE AND ACCESS ROAD LAYOUT, LINER TYPE REVISED	SJM	KML	18-07-25
0	ISSUED FOR CONSTRUCTION			

REVISIONS

HATCH

ROLE	NAME	SIGNATURE	DATE
DRAFTSPERSON	S. SKINNER	NR	18-07-06
DESIGNER	K. MacLEAN	NR	18-07-06
CHECKER	M. MacINTYRE		19/02/01
DESIGN COORD.	M. MacINTYRE		19/02/01
RESP. ENG.	F. BUTTS		19/02/01
LEAD DISC. ENG.	K. MacLEAN		19/02/01
ENG. MANAGER	G. PEACE		19/02/01
APPR. MANAGER	R. VENTER		19/02/15
CLIENT	T. ATIBA		19/03/15

DRAWING APPROVAL STATUS: Approved for Construction

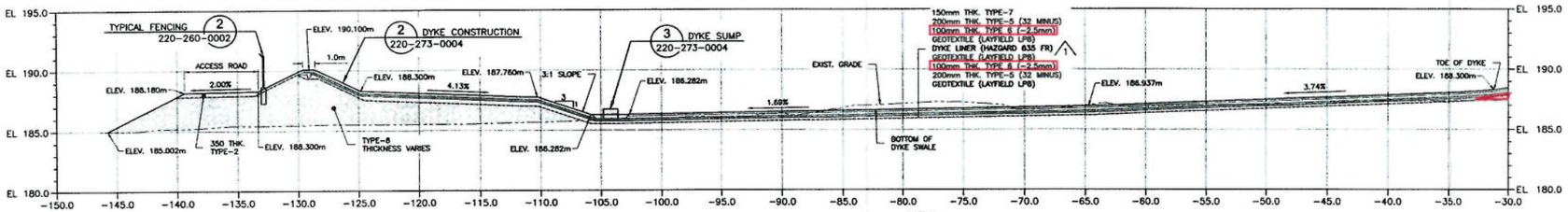
Baffinland

MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

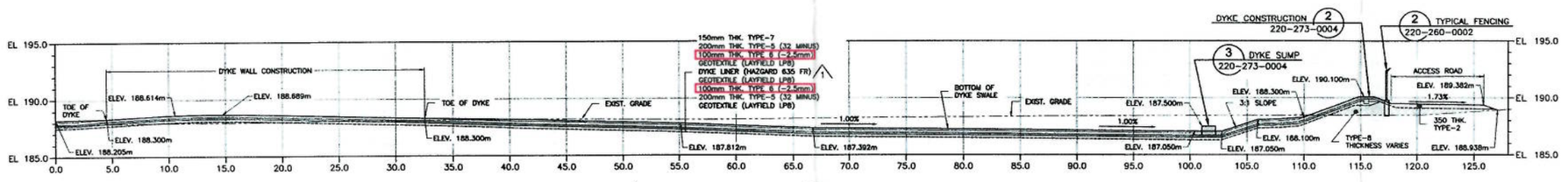
MINE SITE
TANK FARM DYKE
SECTIONS E & F

SCALE: 1:200 OR AS NOTED
DWG. No. H353004-10000-220-273-0002-0001
REV 2
SHEET SIZE: A1

DWG. No. H353004-10000-220-273-0003-0001



SECTION G
CONTAINMENT DYKE 220-272-0009
SCALE: 1:200



SECTION H
CONTAINMENT DYKE 220-272-0009
SCALE: 1:200

Option of areas of Type 6 material changed to Type 9 as per RFI-001 & Site screened material acceptability per RFI-0005

Released for Use

NUNA
NUNA EAST LTD

REDLINE DRAWING

CHANGES, ADDITIONS, DELETIONS AND RELOCATIONS IN RED INK USING STANDARD SYMBOLS, DELETIONS TO BE CLOUDED AND HATCHED.

REDLINE BY: ☑ CONSTRUCTION ☐ COMMISSIONING ☐ SUSTAINMENT
NAME/SIGN: BRANDON WATKINS COMPANY: NUNA
DATE OF AS-BUILT: 9/26/19 ☐ CHECK IF NO CHANGE
CHECKED BY:
NAME/SIGN: COMPANY: Hatch

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date 19-01-18
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

REFERENCE DRAWINGS	
DRAWING No.	DRAWING TITLE
H353004-10000-220-273-0004-0001	MINE SITE DYKE SECTIONS & DETAILS
H353004-10000-220-272-0009-0001	MINE SITE TANK FARM GRADING PLAN
H353004-10000-220-260-0002-0001	MINE SITE TANK FARM DYKE MISCELLANEOUS DETAILS

REG. PROFESSIONAL: P.E. BUTTS, LICENCE No. 17390, NT/NU

No.	DESCRIPTION	BY	CHK'D	DATE
1	SECTIONS UPDATED TO SUIT REVISED DYKE AND ACCESS ROAD LAYOUT, LINER TYPE REVISED	SJM	MMI	19/01/18
0	ISSUED FOR CONSTRUCTION	SJM	KML	18-07-25

REVISIONS

HATCH

ROLE	NAME	SIGNATURE	DATE
DRAFTSPERSON	S. SKINNER	NR	18-07-06
DESIGNER	K. MacLEAN	NR	18-07-06
CHECKER	M. MacINTYRE	Michael MacIntyre	19/01/18
DESIGN COORD.	M. MacINTYRE	Michael MacIntyre	19/01/18
RESP. ENG.	F. BUTTS	P. Butts	19/01/18
LEAD DISC. ENG.	K. MacLEAN	Kevin MacLean	19/01/18
ENG. MANAGER	Glen Peace	Glen Peace	19/01/22
PROJ. MANAGER			
CLIENT	T. ATIBA		19/01/22

DRAWING APPROVAL STATUS: Approved for Construction

Baffinland

MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

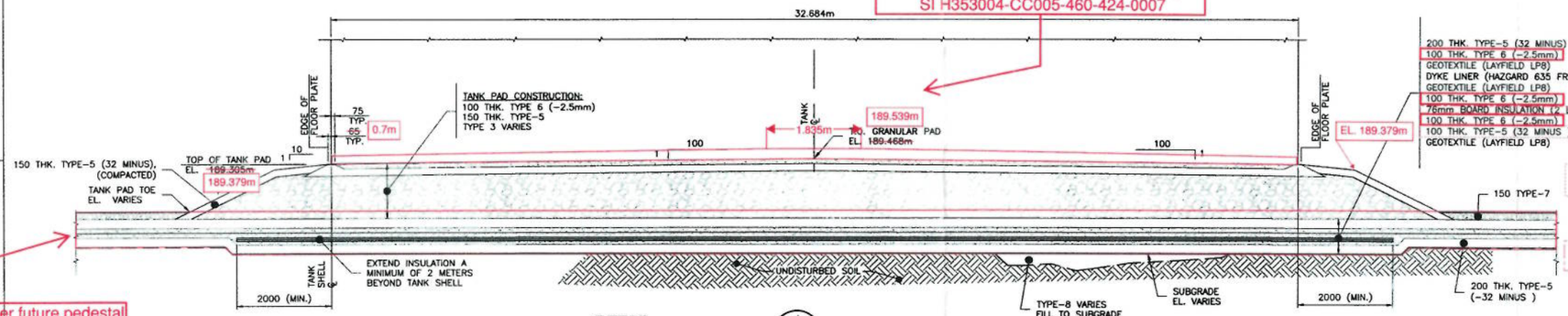
MINE SITE
TANK FARM DYKE
SECTIONS G & H

SCALE	DWG. No.	REV
1:200 OR AS NOTED	H353004-10000-220-273-0003-0001	1

SHEET SIZE: A1

DWG. No. H353004-10000-220-273-0004-0001

Elevation and pedestal capping modified per SI H353004-CC005-460-424-0007



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

Layer thickness increased to 200mm as per RFI-0003 & 4

Layer thickness reduced to 176mm as per RFI-0007

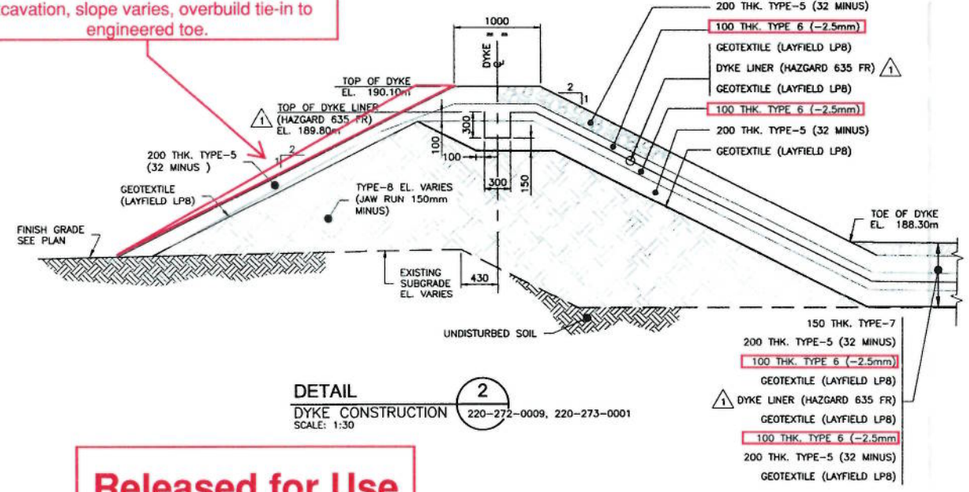
Board insulation thickness changed to 50mm as per RFI-0007

Future Tanks 6 & 7 under future pedestal insulation installed per RFI-0010

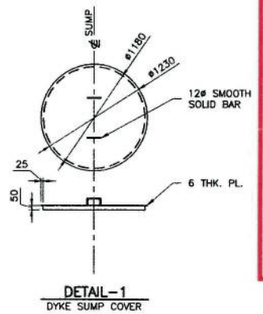
Option of areas of Type 6 material changed to Type 9 as per RFI-001 & Site screened material acceptability per RFI-0005

DETAIL 1
TANK PAD CONSTRUCTION
220-272-0009, 220-273-0001, 220-273-0002
SCALE: 1:50

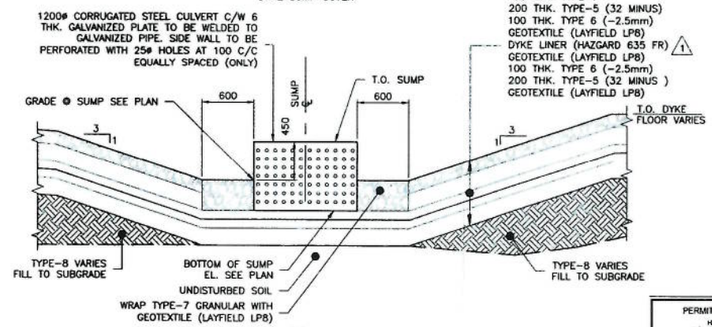
Field instruction to overbuild exterior slope to accommodate equipment access for Key Trench excavation, slope varies, overbuild tie-in to engineered toe.



DETAIL 2
DYKE CONSTRUCTION
220-272-0009, 220-273-0001
SCALE: 1:30



DETAIL-1
DYKE SUMP COVER



DETAIL 3
DYKE SUMP CONSTRUCTION
220-272-0009, 220-273-0001, 220-273-0002
SCALE: 1:30

NUNA
NUNA EAST LTD

REDLINE DRAWING

CHANGES, ADDITIONS, DELETIONS AND RELOCATIONS IN RED INK USING STANDARD SYMBOLS, DELETIONS TO BE CLOUDED AND HATCHED.

REDLINE BY: ☑ CONSTRUCTION ☐ COMMISIONING ☐ SUSTAINMENT
NAME/SIGN: NAYFORD WATERS COMPANY: NUNA
DATE OF AS-BUILT: 9/26/18 ☐ CHECK IF NO CHANGE
CHECKED BY:
NAME/SIGN: COMPANY: Hatch

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date 19-01-18
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

Released for Use

REFERENCE DRAWINGS	
DRAWING No.	DRAWING TITLE
H353004-10000-220-273-0002-0001	MINE SITE TANK FARM DYKE SECTIONS E & F
H353004-10000-220-273-0001-0001	MINE SITE TANK FARM DYKE SECTIONS A TO D
H353004-10000-220-272-0009-0001	MINE SITE TANK FARM GRADING PLAN

REG. PROFESSIONAL: F.E. BUTTS, LICENSEE, NT/NU

No.	DESCRIPTION	BY	CHK'D	DATE
1	DYKE LINER TYPE REVISED	KML	FEB	19/01/18
0	ISSUED FOR CONSTRUCTION	SJM	KML	18-07-25

REVISIONS

HATCH

ROLE	NAME	SIGNATURE	DATE
DRAFTSPERSON	S. SKINNER	NR	18-07-06
DESIGNER	K. MacLEAN	NR	18-07-06
CHECKER	M. MacINTYRE	Michael MacIntyre	19/01/18
DESIGN COORD.	M. MacINTYRE	Michael MacIntyre	19/01/18
RESP. ENG.	F. BUTTS	F. Butts	19/01/18
LEAD DISC. ENG.	K. MacLEAN	Kathy MacLean	19/01/18
ENG. MANAGER	Glen Peace	Glen Peace	19/01/22
PROJ. MANAGER			
CLIENT	T. ATIBA		19/01/23
DRAWING APPROVAL STATUS:	Approved for Construction		

Baffinland

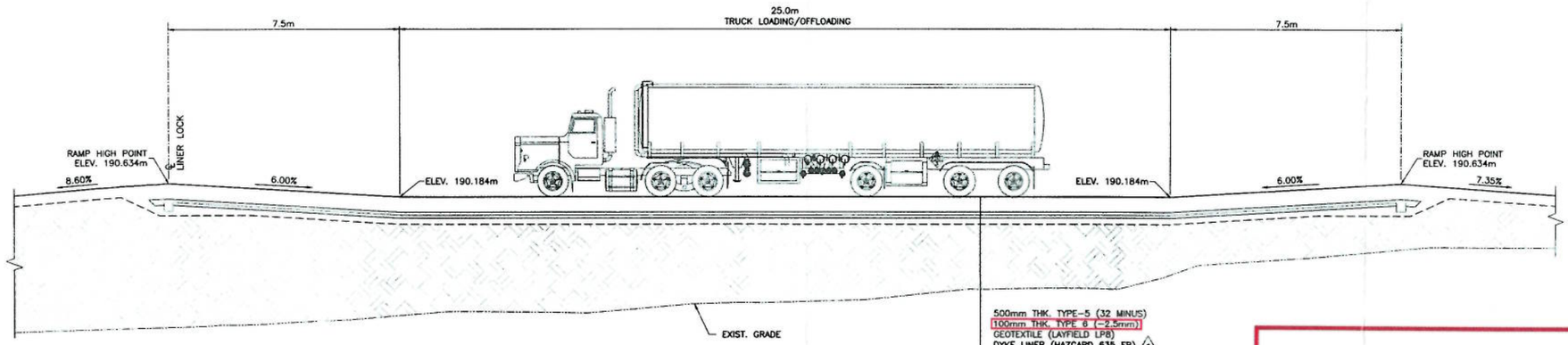
MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

MINE SITE
TANK FARM
DYKE SECTIONS & DETAILS

SCALE	DWG. No.	REV
1:50 OR AS NOTED	H353004-10000-220-273-0004-0001	1

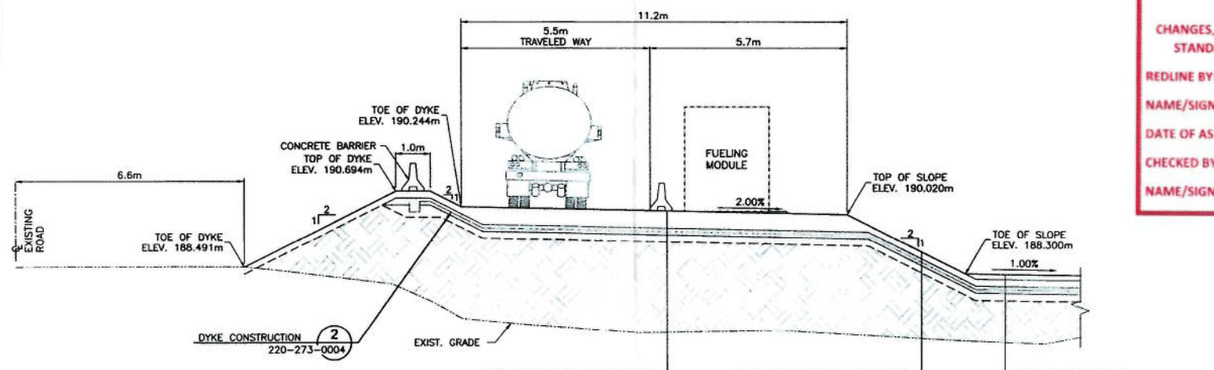
SHEET SIZE: A1

DWG. No. H353004-10000-220-273-0006-0001



SECTION
TRUCK LOADING/OFFLOADING AREA (A) 220-273-0001
SCALE: 1:75

Option of areas of Type 6 material changed to Type 9 as per RFI-001 & Site screened material acceptability per RFI-0005



SECTION
TRUCK LOADING/OFFLOADING AREA (B) 220-273-0001
SCALE: 1:75

NUNA
NUNA EAST LTD

REDLINE DRAWING

CHANGES, ADDITIONS, DELETIONS AND RELOCATIONS IN RED INK USING STANDARD SYMBOLS, DELETIONS TO BE CLOUDED AND HATCHED.

REDLINE BY: ☑ CONSTRUCTION ☐ COMMISIONING ☐ SUSTAINMENT
NAME/SIGN: BRADFORD WEKID COMPANY: NUNA
DATE OF AS-BUILT: 9/26/19 ☐ CHECK IF NO CHANGE
CHECKED BY:
NAME/SIGN: COMPANY: Hatch

Released for Use

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date 19-01-18
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

REFERENCE DRAWINGS		REG. PROFESSIONAL	REVISIONS					
DRAWING No.	DRAWING TITLE		No.	DESCRIPTION	BY	CHK'D	DATE	
H353004-10000-220-273-0001-0001	MINE SITE TANK FARM DYKE SECTIONS A TO D		1	DYKE LINER TYPE REVISED	KML	KML	19/01/18	
			0	ISSUED FOR CONSTRUCTION	SJM	KML	18-07-25	

F.E. BUTTS LICENSEE NT/NU

HATCH

DRAFTSPERSON	S. SKINNER	NR	18-07-06
DESIGNER	K. MacLEAN	NR	18-07-06
CHECKER	M. MacINTYRE		19/01/18
DESIGN COORD.	M. MacINTYRE		19/01/18
RESP. ENG.	F. BUTTS		19/01/18
LEAD DISC. ENG.	K. MacLEAN		19/01/18
ENG. MANAGER	Glen Peace		19/01/24
PROJ. MANAGER			
CLIENT	T. ATIBA		19/01/24
ROLE	NAME	SIGNATURE	DATE

DRAWING APPROVAL STATUS: Approved for Construction

Baffinland

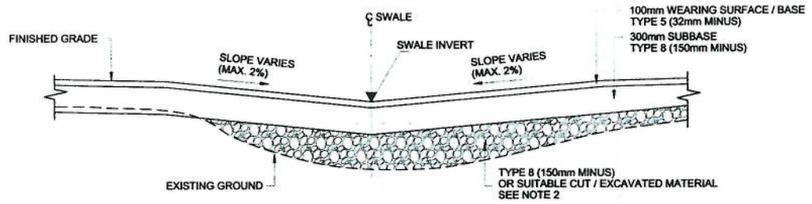
MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

MINE SITE
SECTIONS THRU
TRUCK LOADING/OFFLOADING AREA

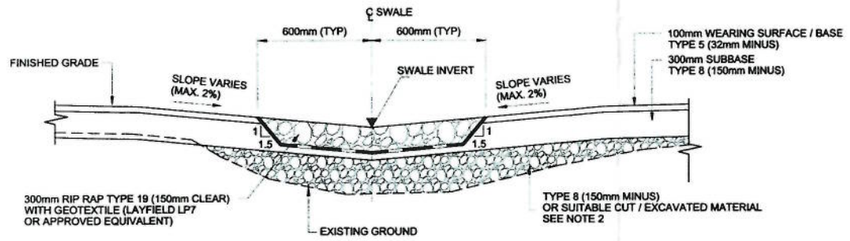
SCALE	DWG. No.	REV
1:50 OR AS NOTED	H353004-10000-220-273-0006-0001	1

SHEET SIZE: A1

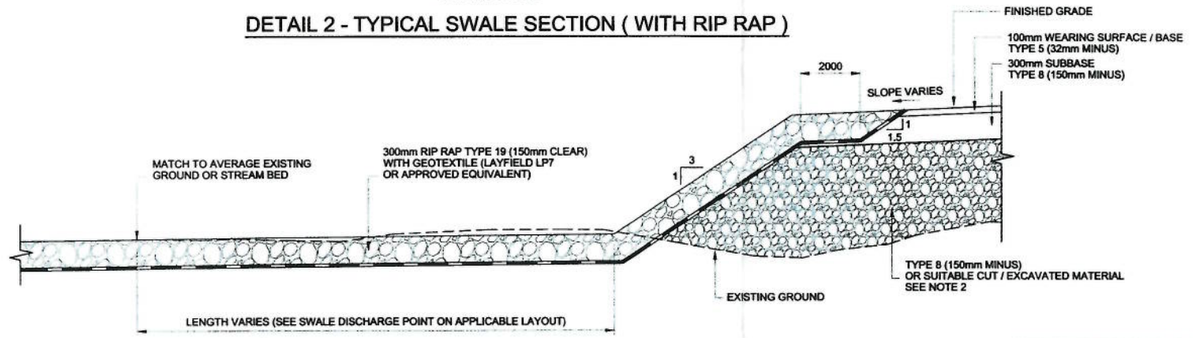
DWG. No. H353004-00000-221-294-0006-0001



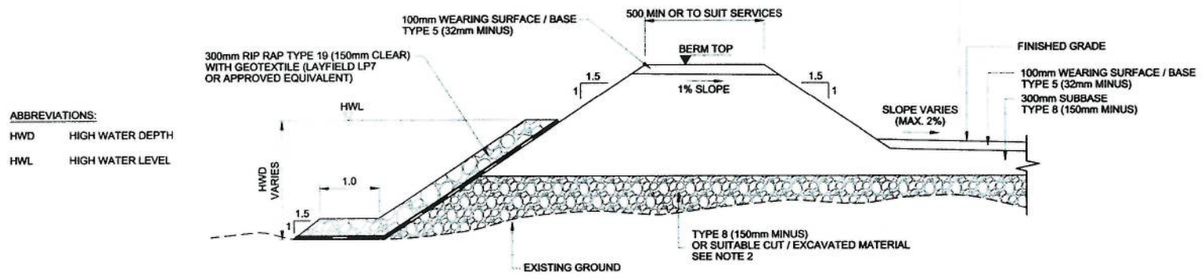
DETAIL 1 - TYPICAL SWALE SECTION (WITHOUT RIP RAP)



DETAIL 2 - TYPICAL SWALE SECTION (WITH RIP RAP)



DETAIL 3 - TYPICAL DETAIL AT SWALE DISCHARGE POINT



ABBREVIATIONS:

HWD	HIGH WATER DEPTH
HWL	HIGH WATER LEVEL

DETAIL 4 - TYPICAL DETAIL OF BERM AT EDGE OF PLATEAU EARTHWORKS

NOTES:

1. ALL DIMENSIONS AND ELEVATIONS SHOWN ARE IN METERS UNLESS NOTED OTHERWISE.
2. FOR FILL DEPTH >600mm AND DEPENDING ON FILL EXTENT, USE TYPE 12, I.E. RUN OF QUARRY (600mm MINUS)
3. THIS DRAWING ONLY COVERS THE UTILITY BERM EARTHWORKS AND ALL OF DIMENSIONS AND DETAILS ARE PARAMETRIC AND SHOULD BE READ IN CONJUNCTION WITH ELECTRICAL / MECHANICAL REQUIREMENTS.
4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH PROJECT UTILITY SERVICES DRAWINGS FOR CABLING AND PIPING. ALL CABLING AND PIPING UTILITIES ARE TO BE LAID DIRECTLY ON THE BERM, NO PIPE SUPPORTS ETC ARE REQUIRED.
5. NUMBERS AND DIAMETERS OF STEEL CASING PIPES, WHERE APPLICABLE, SHALL BE PLACED ACCORDING TO ELECTRICAL / MECHANICAL REQUIREMENTS AS DEFINED ON THE PROJECT UTILITY SERVICES DRAWINGS.

MATERIAL AND COMPACTION SPECIFICATION:

SUBGRADE PREPARATION:
THE SUBGRADE SHOULD SHOULD BE PROOF-ROLLED AND INSPECTED PRIOR TO PLACING FILL MATERIALS. THE IDENTIFIED SOFT AREAS SHALL BE FURTHER COMPACTED, OR IF NECESSARY, BE MITIGATED USING GRANULAR OR ROCK FILL. A QUALIFIED GEOTECHNICAL ENGINEER SHALL INSPECT AND APPROVE THE SUBGRADE.
THE ROCKFILL SHALL NOT BE PLACED IN WATER OR ON ICE. DEWATERING IS REQUIRED WHERE PONDING WATER IS ENCOUNTERED. OVER-EXCAVATION IS REQUIRED FOR GROUND ICE, IF ENCOUNTERED.
THE SUBGRADE ON THE GROUND SHALL BE LEFT AS IT IS NATURALLY BEFORE CONSTRUCTION AS MUCH AS POSSIBLE. THE OVER-EXCAVATION SHOULD BE MINIMIZED TO AVOID DISTURBANCE OF THE EXISTING PERMAFROST.

TYPE 5 (CRUSHER RUN 32mm MINUS MATERIAL) OR TYPE 3 (CRUSHER RUN 50mm MINUS):
THE MATERIAL MUST BE PLACED IN LIFTS NOT EXCEEDING 200mm AND SHALL BE COMPACTED BY MINIMUM 5 PASSES OF A MINIMUM 15 TON VIBRATORY ROLLER WITH VIBRATIONS IN THE RANGE OF 1200 TO 1500 vpm AND THE ROLLER SPEED OF ABOUT 2mph (3.2km/h). ALTERNATIVELY, THE COMPACTION SHOULD ACHIEVE A MINIMUM OF 100 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY TEST METHOD ASTM D698.

TYPE 8 (CRUSHER RUN 150mm MINUS):
THE ROCKFILL MUST BE PLACED IN LIFTS NOT EXCEEDING 500mm. THE PLACEMENT SHALL AVOID SEGREGATION AND NESTING OF COARSE PARTICLES. IT SHALL BE COMPACTED BY MINIMUM 5 PASSES OF A MINIMUM 15 TON VIBRATORY ROLLER WITH VIBRATIONS IN THE RANGE OF 1200 TO 1500 vpm AND THE ROLLER SPEED OF ABOUT 2mph (3.2km/h). EACH LIFT MUST BE "PROOF-ROLLED" PRIOR TO PLACING THE SUBSEQUENT LIFT.

TYPE 12 (RUN OF MINE, TYPICALLY 600mm MINUS):
THE ROCKFILL, IF USED, MUST BE PLACED IN LIFTS NOT EXCEEDING 1000mm. THE ROCKFILL SHALL BE COMPACTED BY MINIMUM 5 PASSES OF A MINIMUM 15 TON VIBRATORY ROLLER WITH VIBRATIONS IN THE RANGE OF 1200 TO 1500 vpm AND THE ROLLER SPEED OF ABOUT 2mph (3.2km/h). ALTERNATIVE COMPACTORS SUCH AS HEAVY LOADED RUBBER TIRED HAUL TRUCKS CAN ONLY BE USED AS PER A WRITTEN APPROVAL FROM THE ENGINEER.

NUNA EAST LTD

REDLINE DRAWING

CHANGES, ADDITIONS, DELETIONS AND RELOCATIONS IN RED INK USING STANDARD SYMBOLS, DELETIONS TO BE CLOUDED AND HATCHED.

REDLINE BY: ☑ CONSTRUCTION ☐ COMMISIONING ☐ SUSTAINMENT
NAME/SIGN: [illegible] COMPANY: Nuna
DATE OF AS-BUILT: 9/26/19 ☑ CHECK IF NO CHANGE
CHECKED BY:
NAME/SIGN: COMPANY: Hatch

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date 2018-09-20
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

Released for Use

REGISTERED PROFESSIONAL ENGINEER R. A. HALIM LICENSEE 2018-09-25 NWT/NU

FOR CONSTRUCTION

No.	DESCRIPTION	BY	CHK'D	DATE
1	MATERIALS AND COMPACTION SPECIFICATION ADDED	IHB	FH	16/08/2018
0	APPROVED FOR CONSTRUCTION	IHB	FH	01/12/2017

REVISIONS

DRAFTSPERSON	I BARNARD	NR	16/08/2018
DESIGNER	I BARNARD	NR	16/08/2018
CHECKER	F HUGO		2018-09-20
DESIGN COORD.	R GOOSEN		2018-09-20
RESP. ENG.	R HALIM		2018-09-20
LEAD DISC. ENG.	A GROBBELAAR		20 September
AREA LEAD	V LAVRIC		2018-09-20
ENG. MANAGER	D STANGER		2018-09-21
AREA MANAGER	T ATIBA		2018-09-21

ROLE	NAME	SIGNATURE	DATE

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

Baffinland

BAFFINLAND IRON MINES LP
MARY RIVER EXPANSION PROJECT

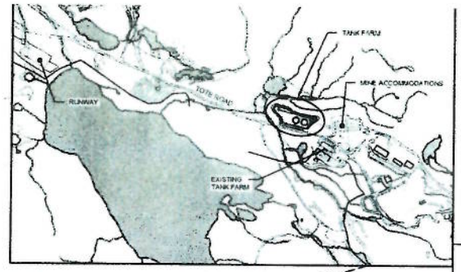
SITE WIDE
STANDARD DRAWING
EARTHWORKS & DRAINAGE DETAILS

SCALE	DWG. No.	REV
NTS OR AS NOTED	H353004-00000-221-294-0006-0001	1

SHEET SIZE: D

DRAWING No. | DRAWING TITLE | REFERENCE DRAWINGS | REG. PROFESSIONAL

$USERNAMES



159600

MAN GATE POST BASE 3 220-260-0002

℄ DYKE ACCESS STAIR

2 FENCE 220-260-0002

31000 MIN. SETBACK

℄ ARCTIC DIESEL TANK

45500

MAN GATE POST BASE 3 220-260-0002

℄ DYKE ACCESS STAIR

3 DYKE ACCESS STAIRS 220-260-0003

1.8M HIGH DYKE (TYP.)

℄ DYKE

DYKE SUMP

2 DYKE ACCESS STAIRS 220-260-0003

6m WIDE FIRE ACCESS ROAD

DRAINAGE SWALE

50050

DYKE SUMP

DRAINAGE SWALE

6m WIDE FIRE ACCESS ROAD

TANK 1 240-270-0001

ARCTIC DIESEL TANK TK-005
32.65mø x 18.15m HIGH

5m ACCESS RAMP

6.0m SWING GATES

ELECTRICAL TO BE REMOVED & RE-ROUTED

DRAINAGE SWALE

4 FENCE POST BASE 220-260-0002

℄ TANK & TANK PAD

Fence relocation per Hatch E-mail / field instruction dated 7-4-19

3012±

44800

2

℄ DYKE ACCESS STAIR

31400

MAN GATE POST BASE 3 220-260-0002

1 DYKE ACCESS STAIRS 220-260-0002

Fire Access Road elevation raised per Hatch E-mail instruction dated 7-14-19

℄ DYKE

5200

6000

RAMP

RAMP

CONCRETE BARRIER (TYP.)

1 ENLARGED PIPING 240-272-0003

Released for Use

4 FENCE POST BASE 220-260-0002

RELOCATED FUEL MODULE

TRUCK LOADING/OFFLOADING AREA

MILNE INLET

TOTE ROAD

MINE SITE

PLAN
TANK FARM
SCALE: 1:400

Ramp daylights @ Dyke slope per E-mail / field instruction dated 7-4-19

SCALE: 1:400
0m 10m 20m 30m

NUNA
NUNA EAST LTD.

REDLINE DRAWING

CHANGES, ADDITIONS, DELETIONS AND RELOCATIONS IN RED INK USING STANDARD SYMBOLS, DELETIONS TO BE LOUDED AND HATCHED.

REDLINE BY: ✓ CONSTRUCTION ☐ COMMISSIONING ☐ SUSTAINMENT
NAME/SIGN: [illegible] COMPANY: NUNA
DATE OF AS-BUILT: 9/26/19 ☐ CHECK IF NO CHANGE
CHECKED BY:
NAME/SIGN: [illegible] COMPANY: Hatch

FENCE LAYOUT POINTS				
TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
100	FENCE LINE	188.499	7913528.836	560972.407
101	FENCE LINE	188.500	7913519.482	560955.090
102	FENCE LINE	188.553	7913500.154	560958.592
103	FENCE LINE	188.500	7913489.092	560988.882
104	FENCE LINE	187.736	7913459.323	560993.725
105	FENCE LINE	187.598	7913450.688	560996.156
106	FENCE LINE	186.790	7913436.779	560997.844
107	FENCE LINE	188.198	7913428.441	560997.802
108	FENCE LINE	188.091	7913428.210	561001.279
			7913424.256	561009.008

FENCE LAYOUT POINTS				
TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
109	FENCE LINE	186.083	7913418.506	561009.833
110	FENCE LINE	189.754	7913420.916	561030.876
111	FENCE LINE – MAN GATE	190.065	7913420.516	561062.493
112	FENCE LINE – MAN GATE	190.065	7913414.457	561075.146
113	FENCE LINE	190.208	7913407.636	561103.632
114	FENCE LINE	189.400	7913407.401	561103.917
115	FENCE LINE	189.783	7913399.723	561135.082
116	FENCE LINE	189.704	7913398.517	561141.050
117	FENCE LINE	189.901	7913409.631	561152.119

FENCE LAYOUT POINTS				
TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
118	FENCE LINE	190.084	7913417.063	561157.195
119	FENCE LINE	190.085	7913419.740	561158.549
120	FENCE LINE – ACCESS GATE	190.094	7913422.647	561159.025
121	FENCE LINE – ACCESS GATE	190.095	7913428.344	561184.840
122	FENCE LINE	190.065	7913427.957	561167.260
123	FENCE LINE	189.952	7913432.372	561171.338
124	FENCE LINE	189.790	7913434.264	561173.668
125	FENCE LINE	189.747	7913435.982	561176.126
126	FENCE LINE	189.697	7913451.155	561198.459

FENCE LAYOUT POINTS				
TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
127	FENCE LINE	189.699	7913458.345	561200.040
128	FENCE LINE	189.700	7913462.539	561195.158
129	FENCE LINE	189.700	7913463.816	561188.250
130	FENCE LINE – MAN GATE	189.549	7913464.540	561183.323
131	FENCE LINE – MAN GATE	189.549	7913464.663	561182.333
132	FENCE LINE	189.700	7913464.778	561179.541
133	FENCE LINE	189.699	7913471.591	561132.027
134	FENCE LINE	189.303	7913475.753	561111.453
135	FENCE LINE	188.502	7913482.042	561091.427

FENCE LAYOUT POINTS				
TARGET No.	FEATURE	ELEVATION	NORTHING	EASTING
136	FENCE LINE	188.501	7913494.780	561057.768
137	FENCE LINE	188.508	7913496.291	561055.176
138	FENCE LINE	188.500	7913510.128	561035.567
139	FENCE LINE	188.500	7913514.594	561027.772
140	FENCE LINE	188.500	7913517.485	561019.251
141	FENCE LINE	188.500	7913524.603	560990.113
142	FENCE LINE – MAN GATE	188.378	7913525.551	560987.266
143	FENCE LINE – MAN GATE	188.378	7913525.789	560986.295
144	FENCE LINE	188.500	7913526.079	560984.086

PERMIT TO PRACTICE
HATCH LTD
Signature
Date 9/10/19
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

DRAWING No.	DRAWING TITLE
H353004-10000-240-272-0003-0001	MINE SITE TANK FARM ENLARGED PIPING PLAN
H353004-10000-220-260-0002-0001	MINE SITE TANK FARM DYKE MISCELLANEOUS DETAILS
H353004-10000-220-260-0003-0001	MINE SITE TANK FARM DYKE ACCESS STAIRS
H353004-10000-240-270-0001-0001	MINE SITE 15,000,000L ARCTIC DIESEL TANK TK-005
H353004-10000-240-270-0002-0001	MINE SITE 15,000,000L ARCTIC DIESEL TANK TK-006
H353004-10000-220-272-0009-0001	MINE SITE TANK FARM GRADING PLAN
H353004-10000-220-273-0001-0001	MINE SITE TANK FARM DYKE SECTIONS A TO D
H353004-10000-220-273-0002-0001	MINE SITE TANK FARM DYKE SECTIONS E & F
H353004-10000-220-273-0003-0001	MINE SITE TANK FARM DYKE SECTION G & H
H353004-10000-260-272-0005-0001	MINE SITE TANK FARM ELECTRICAL GENERAL ARRANGEMENT
H353004-10000-260-272-0007-0001	MINE SITE TANK FARM GROUNDING PLAN

P.E. BUTTS
LICENSEE
NT/NU

FOR CONSTRUCTION

No.	DESCRIPTION	BY	CHK'D	DATE
3	DYKE ACCESS STAIR AND FENCE MANGATE RELOCATED AND FENCE LAYOUT POINT TABLE REVISED TO SUIT	[illegible]	MMI	19-06-18
2	ADDITIONAL STORAGE TANK TK-006 AND PIPING ADDED	HPC	MMI	19-02-01
1	DYKE LAYOUT, FENCING REVISED & ACCESS STAIR CALLOUT BUBBLE REVISED	HPC	MMI	19-01-18
0	ISSUED FOR CONSTRUCTION	HPC	MMI	18-07-25

HATCH

ROLE	NAME	SIGNATURE	DATE
DRAFTSPERSON	H. P. CURRIE	NR	18-07-06
DESIGNER	K. MACLEAN	NR	18-07-06
CHECKER	M. MACINTYRE	[illegible]	[illegible]
DESIGN COORD.	M. MACINTYRE	[illegible]	[illegible]
RESP. ENG.	F. BUTTS	[illegible]	[illegible]
LEAD DISC. ENG.	K. MACLEAN	[illegible]	[illegible]
AREA LEAD	N MASON		
PROJ. MANAGER			
CLIENT	D. HENKELMAN		

Baffinland

MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

MINE SITE
TANK FARM
GENERAL ARRANGEMENT

SCALE 1:400 OR AS NOTED
DWG. No. H353004-10000-240-272-0002-0001
REV 3
SHEET SIZE: A1

DWG. No. H353004-10000-240-272-0003-0001

ARCTIC DIESEL TANK TK-006
15 000 000L
(32.65mø x 18.15m H)

ARCTIC DIESEL TANK TK-005
15 000 000L
(32.65mø x 18.15m H)

TANK & 150ø SUCTION LINE
150ø LOW SUCTION LINE
150ø FILL LINE
ENLARGED PIPING PLAN 2 240-272-0003
TOP OF TANK PAD EL. 189.192m
TOE OF TANK PAD EL. VARIES
TANK EXTERIOR SHELL
49100
6-SPACES AT 5200 = 31200
150 GATE VALVES (TYP.)
PIPE SUPPORT PS-011 & 015 4 220-280-0001
CABLE TRAY SUPPORT CTS-005, 007 & 008 7 220-280-0001
PIPE SUPPORTS A 240-273-0001
150 GATE VALVE c/w BLIND FLANGE
150 STR. TEE ROLLED AT 45°
150 GATE VALVE
150ø 45° ELBOWS
PIPE SUPPORTS
DRAIN TYP. 2 240-273-0002
DYKE ACCESS STAIR (GUIDE)
TOE OF DYKE EL. 188.300m
TOP OF DYKE EL. 190.020m
300 WIDE CABLE TRAY (TYP.)
PIPE SUPPORT PS-002 2 220-280-0001
PIPE SUPPORT PS-001 1 220-280-0001
DYKE ACCESS STAIR 1 220-260-0002
CABLE TRAY SUPPORT CTS-001 & 002 6 220-280-0001
PIPE SUPPORT PS-003 TO PS 010, 012, 013 & 014 3 220-280-0001
CABLE TRAY SUPPORT CTS-003, 004, 006 & 009 5 220-280-0001
150ø 90° L.R. ELBOW
150ø 45° ELBOWS
VENT TYP. 1 240-273-0002
GATE MANWAY
150ø STR. TEE
150 GATE VALVE
FUTURE GENSET CONNECTION
RELOCATED EXISTING FUELING MODULE
CABLE TRAY
150ø TANK DISCHARGE LINE
150ø TANK FILL LINE
CONCRETE BARRIER (TYPICAL)

PLAN
DYKE PIPING RACK 1 240-272-0002
SCALE: 1:75
SCALE : 1:75
0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

ARCTIC DIESEL TANK
15 000 000L
(32.65mø x 18.15m H)

Built As Per Plan
NUNA/ADCO Power
Name: Andrew Hamilton
Date: Aug 11, 2019
1" Gate Valves Installed Before and After Thermal Relief PRV's As-Per H353004-10000-210-276-0001-0001-2

150ø LOW SUCTION LINE
TANK & 150ø SUCTION LINE
150ø FILL LINE
THERMAL RELIEF TYP. 3 240-273-0002
200 GATE VALVE
200x150 REDUCER
DRAIN TYP. 2 240-273-0002
150ø 90° L.R. ELBOW
150ø STR TEE
150 GATE VALVE (TYP.)
150 CHECK VALVE
VENT TYP. 1 240-273-0002

ENLARGED PIPING PLAN
TANK FILL & DISCHARGE CONNECTION 2 240-272-0003
SCALE: 1:25
SCALE : 1:25
0mm 500mm 1000mm 1500mm 2000mm 2500mm

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date 19/03/01
PERMIT HARDER: P 312
The Association of Professional Engineers, Geologists and Geophysicists of NUNAVUT

REFERENCE DRAWINGS

DRAWING No.	DRAWING TITLE
H353004-10000-210-276-0001-0001	MINE SITE ADDITIONAL TANK FARM STORAGE P&ID
H353004-10000-210-282-0001-0001	MINE SITE FUEL SYSTEM PROCESS FLOW DIAGRAM
H353004-10000-240-272-0002-0001	MINE SITE TANK FARM GENERAL ARRANGEMENT
H353004-10000-240-270-0001-0001	MINE SITE 15,000,000L ARCTIC DIESEL TANK TK-005
H353004-10000-240-270-0002-0001	MINE SITE 15,000,000L ARCTIC DIESEL TANK TK-006
H353004-10000-240-273-0001-0001	MINE SITE TANK FARM PIPING SECTION-A
H353004-10000-240-273-0002-0001	MINE SITE TANK FARM PIPING SECTIONS & MISCELLANEOUS DETAILS
H353004-10000-220-250-0001-0001	MINE SITE TANK FARM PIPE SUPPORTS
H353004-10000-220-200-0002-0001	MINE SITE PIPE SUPPORTS CONCRETE BASE DETAILS
H353004-10000-260-272-0005-0001	MINE SITE TANK FARM ELECTRICAL GENERAL ARRANGEMENT
H353004-10000-260-272-0007-0001	MINE SITE TANK FARM GROUNDING PLAN
H353004-10000-260-260-0001-0001	MINE SITE ELECTRICAL DETAILS

REG. PROFESSIONAL

REVISIONS

No.	DESCRIPTION	BY	CHK'D	DATE
2	ADDITIONAL STORAGE TANK TK-005 AND PIPING ADDED	MJ	MM	19-08-19
1	PS-011 LOCATION REVISED	HPC	MM	19-01-16
0	ISSUED FOR CONSTRUCTION	HPC	MM	18-07-25

HATCH

DRAFTSPERSON	H. P. CURRIE	NR	19-08-19
DESIGNER	J. MacLEAN	NR	19-08-19
CHECKER	M. MacINTYRE		19/02/01
DESIGN COORD.	M. MacINTYRE		19/02/01
RESP. ENG.	F. BUTTS		19/02/01
LEAD DISC. ENG.	J. MacLEAN		
ENG. MANAGER	G. PEACE		19/02/14
AREA MANAGER	R. VENTER		19/02/15
CLIENT	T. ATIBA		

DRAWING APPROVAL STATUS: Approved for Construction

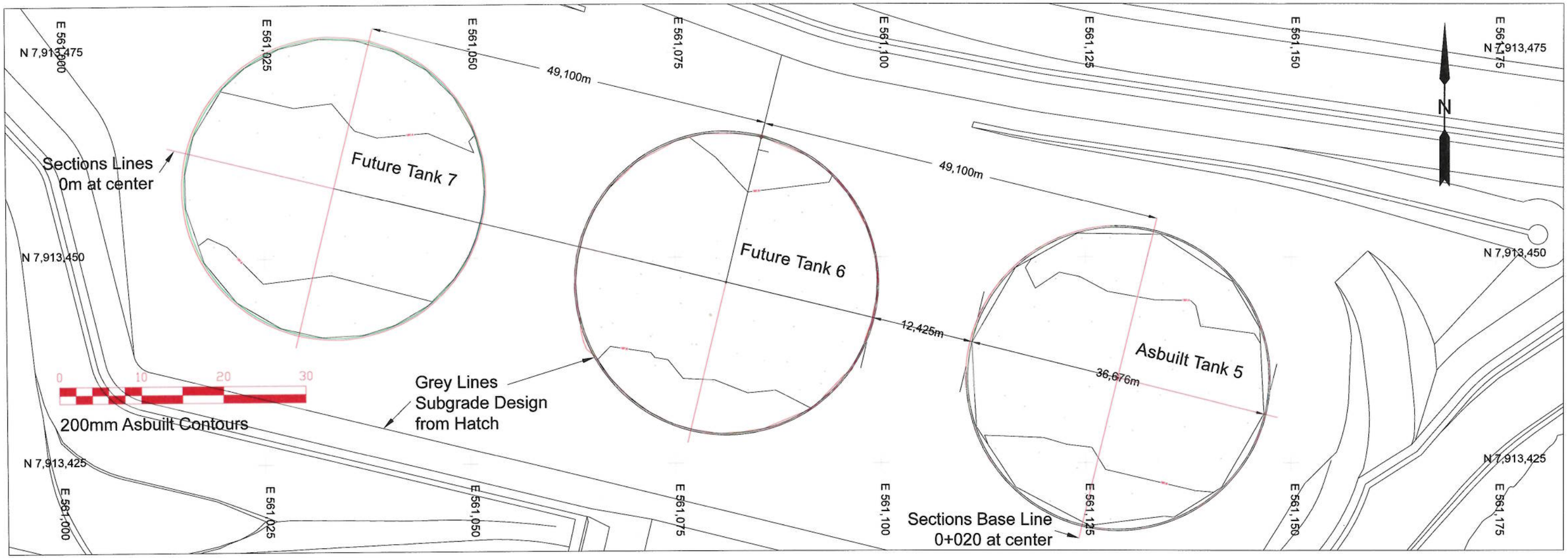
Baffinland

MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

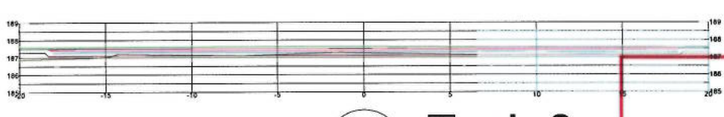
MINE SITE
TANK FARM ENLARGED PIPING PLAN

SCALE 1:75 OR A3 NOTED
DWG. No. H353004-10000-240-272-0003-0001
REV 2
SHEET SIZE: A1

SUBDRAWINGS $DATES $FILES $TIMES



0 + 020 Tank 7



0 + 020 Tank 6

0 + 020 Tank 5

- Asbuilt Tank 5 Pedistal
- Asbuilt Type 6 100mm
- Asbuilt Insulation 100mm
- Asbuilt Type 6 100mm
- Asbuilt Type 5 176mm
- Asbuilt Subgrade
- Subgrade Design
- Origninal Ground

NUNA EAST LTD

AS-BUILT DRAWING

I HEREBY VERIFY THAT THIS DRAWING ACCURATELY REFLECTS THE "AS BUILT" FIELD CONDITION IN CONJUCTION WITH THE SURVEY AS-BUILT DATA.

AS-BUILT BY: ☑ CONSTRUCTION ☐ COMMISIONING ☐ SUSTAINMENT

NAME/SIGN: [signature] COMPANY: NUNA

DATE OF AS-BUILT: 9/30/19 ☐ CHECK IF NO CHANGE

CHECKED BY:

NAME/SIGN: COMPANY:

NOTES:

Pedistal Subgrade Prepared based on IFC coordinates for Tanks 5 & 6, for Tank 7 as directed by Hatch
Ref. drawing H35004-10000-220-272-0012-0001 Rev1 (Rev0 for Tank 7)
NOTE Red Lines RFI 003 Pt# 705 change to 187.192 & pt # 710 change to 187.111
Red Lines RFI 0010 Insulation thickness 100mm thus type 5 reduced from 200mm to 176mm
Red Line References RFI-003, 005, 007, 0010.

Coordinate System:
UTM Zone 17 North
Nad 1983 (Canada)
Geoid HT2_0
Base Station: @ ID # Rebar-01
N 7913406.434
E 561204.787
Z 198.991

CLIENT: Baffinland Iron Mines Corporation

PROJECT: Mary River Expansion Project, Baffin Island, Nunavut

PREPARED BY:
Nuna East Ltd.
9839 - 31 Avenue
Edmonton, AB
T6N 1C5

DRAWN BY: mc

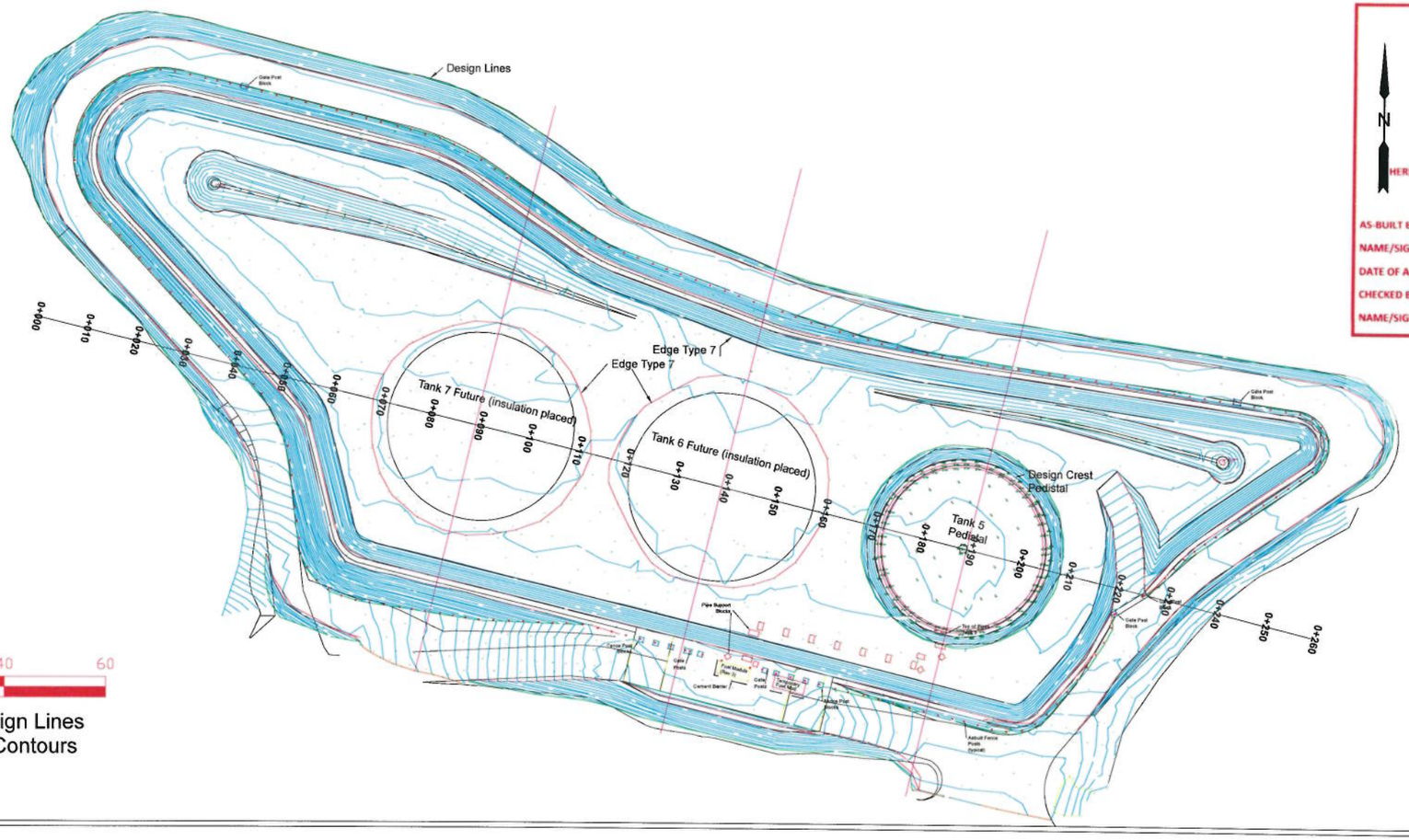
NUNA

SCALE: barscale

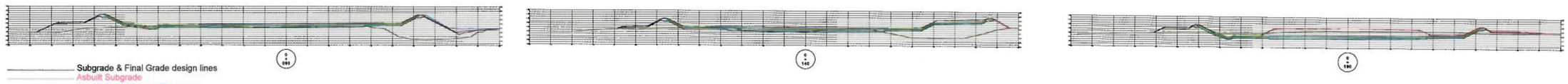
DATE: Sept , 2019

DRAWING TITLE:
Mary River Tank Farm
Pedistal Foundation
Tanks 5 & Tank 6 & Tank 7
Insulation Asbuilt

DRAWING NAME (YYMMDD):
As Built MRTF Pedistal Insulation Tanks 5 & 6 & 7 2019.dwg



—— Final Grade Design Lines
200mm Asbuilt Contours



Subgrade & Final Grade design lines
Asbuilt Subgrade
Asbuilt Type 5 Lower Placement
Asbuilt Type 6 Lower Placement (Liner Surface)
Asbuilt Type 6 Upper Placement (Liner Cover)
Asbuilt Type 5 Upper Placement & Access Road Topping
Asbuilt Type 7 (excluding future tank 6 & 7)
Asbuilt Tank 5 Pedistal

N

NUNA
NUNA EAST LTD

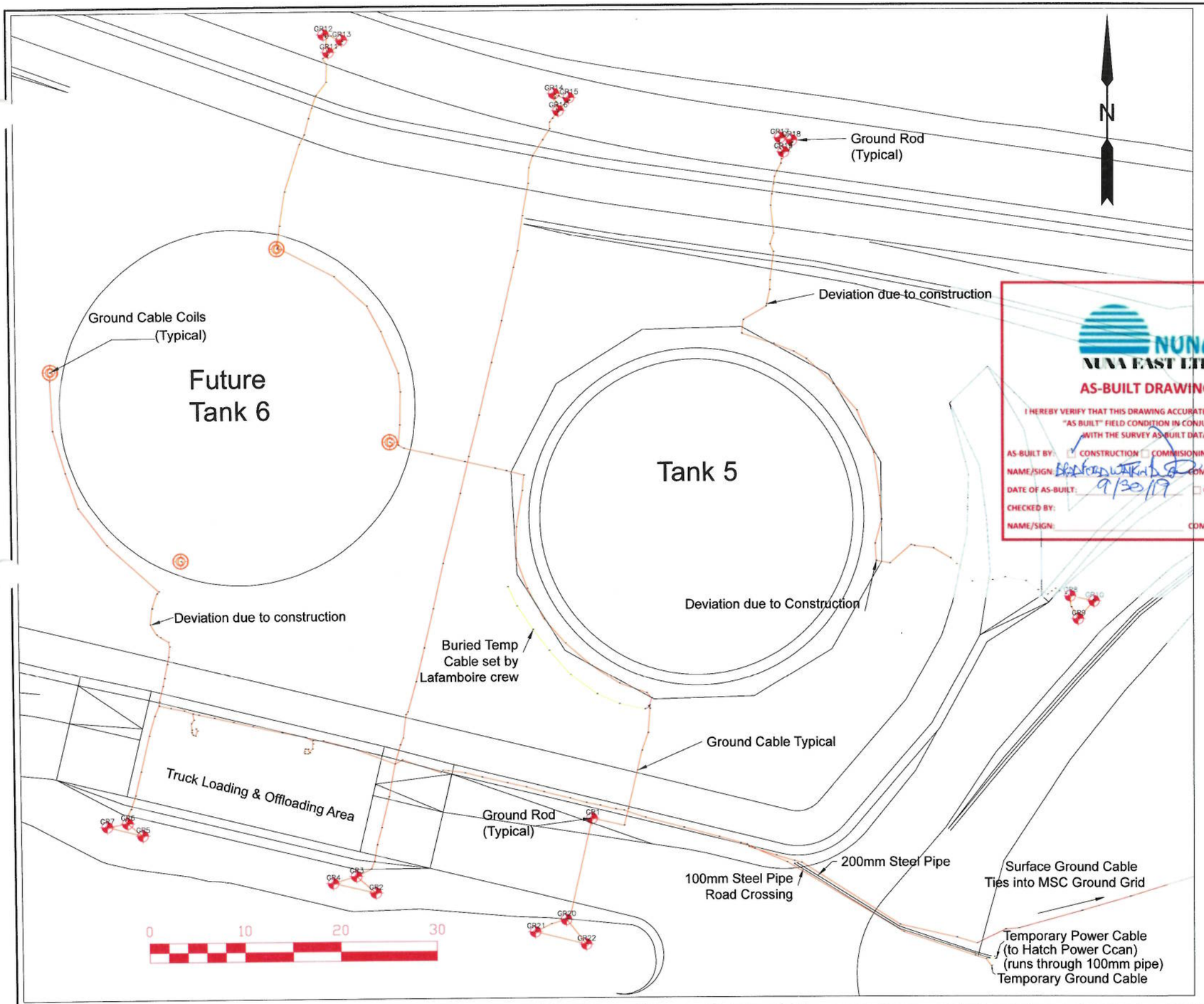
AS-BUILT DRAWING

HEREBY VERIFY THAT THIS DRAWING ACCURATELY REFLECTS THE "AS BUILT" FIELD CONDITION IN CONJUCTION WITH THE SURVEY AS-BUILT DATA.

AS-BUILT BY: ☑ CONSTRUCTION ☐ COMMISSIONING ☐ SUSTAINMENT
NAME/SIGN: [signature] COMPANY: dcHA
DATE OF AS-BUILT: 9/30/19 ☐ CHECK IF NO CHANGE
CHECKED BY:
NAME/SIGN: COMPANY:

NOTES:

CLIENT: Baffinland Iron Mines Corporation	PREPARED BY: Nuna East Ltd. 9839 - 31 Avenue Edmonton, AB T6N 1C5		DRAWING TITLE: **Mary River Tank Farm Final Asbuilt Aug 15, 2019**
PROJECT: Mary River Expansion Project, Baffin Island, Nunavut	DRAWN BY: mc	SCALE: barscale / DATE: Aug 15 2019	DRAWING NAME (YYMMDD): CC005-0001A-MRTF Final Asbuilt.dwg



NUNA EAST LTD

AS-BUILT DRAWING

I HEREBY VERIFY THAT THIS DRAWING ACCURATELY REFLECTS THE "AS BUILT" FIELD CONDITION IN CONJUCTION WITH THE SURVEY AS-BUILT DATA.

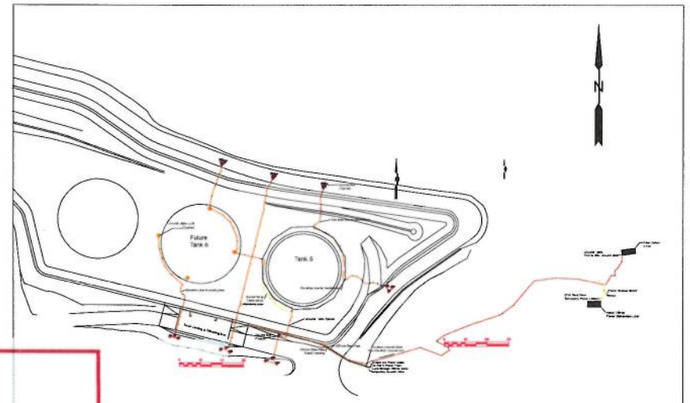
AS-BUILT BY: ☑ CONSTRUCTION ☐ COMMISIONING ☐ SUSTAINMENT

NAME/SIGN: [signature] COMPANY: NUNA

DATE OF AS-BUILT: 9/30/19 ☐ CHECK IF NO CHANGE

CHECKED BY:

NAME/SIGN: COMPANY:



2019 Mary River Tank Farm Grounding Grid:
Grounding Grid buried inside farm & on surface east of steel pipe.
Ground Cables tie into the MSC Ground Grid at fiber optics Ccan.
Temporary Power Line runs through the 100mm steel pipe
& terminates at the Hatch Office Power Distribution Ccan.
Ground Rods (GR1-GR22) were drilled July 26/19 & Elevations
at top of installed ground rods were surveyed.

Rod ID	Northing	Easting	Top of Rod	Descrip
GR1	7913404.06	561117.79	189.48	Top Grou
GR2	7913396.42	561095.15	189.21	Top Grou
GR3	7913398.17	561093.14	190.35	Top Grou
GR4	7913397.45	561090.71	189.67	Top Grou
GR5	7913402.58	561070.87	189.82	Top Grou
GR6	7913403.87	561069.29	190.34	Top Grou
GR7	7913403.52	561067.16	189.75	Top Grou
GR8	7913426.92	561167.92	189.52	Top Grou
GR9	7913424.55	561168.76	189.66	Top Grou
GR10	7913426.39	561170.43	189.74	Top Grou
GR11	7913483.87	561091.10	187.84	Top Grou
GR12	7913485.73	561090.61	187.75	Top Grou
GR13	7913485.14	561092.51	187.79	Top Grou
GR14	7913479.39	561114.48	188.24	Top Grou
GR15	7913478.97	561116.02	188.23	Top Grou
GR16	7913477.62	561114.91	188.30	Top Grou
GR17	7913474.69	561137.94	188.82	Top Grou
GR18	7913474.42	561139.15	188.79	Top Grou
GR19	7913473.20	561138.30	188.74	Top Grou
GR20	7913393.52	561115.01	188.79	Top Grou
GR21	7913392.27	561111.74	188.84	Top Grou
GR22	7913390.96	561117.08	188.81	Top Grou

NOTES:
Ground Rods drilled & asbuilt July 26, 2019
xref files:AB 2019 MRTF Ground Rods.xml & .pdf
CAB 190903 MRTF Tk 5 & 6 Grnd Cables-Rods & Pipe Crossing.csv
Final Grade Design Lines
Ground Cable Coils at Future Tank 6
Ground Rod (Top of Rod)

Coordinate System:
UTM Zone 17 North
Nad 1983 (Canada)
Geoid HT2_0
Base Station: @ ID # Rebar-01
N 7913406.434
E 561204.787
Z 198.991

CLIENT: Baffinland Iron Mines Corporation

PROJECT: Mary River Expansion Project, Baffin Island, Nunavut

PREPARED BY: Nuna East Ltd. 9839 - 31 Avenue Edmonton, AB T6N 1C5

DRAWN BY: mc

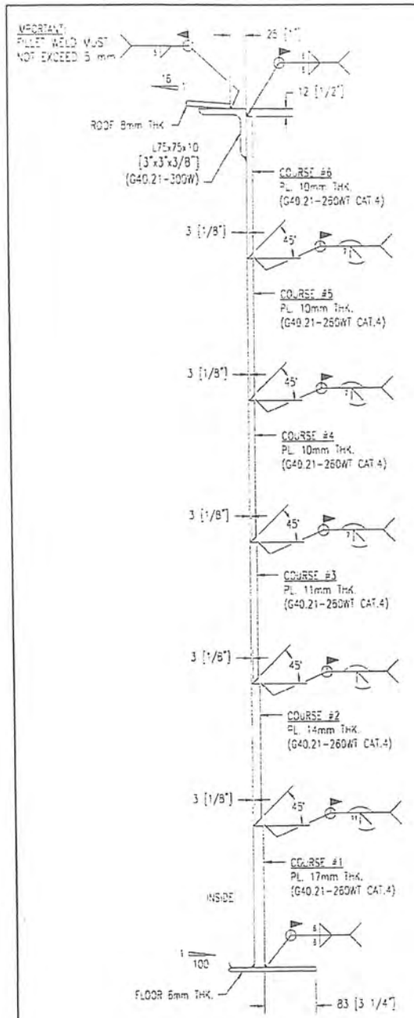
NUNA

DRAWING TITLE: **Mary River Tank Farm Ground Grid & Rods Asbuilt 2019**

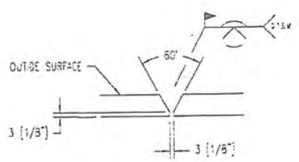
SCALE: barscale

DATE: Sept. 3, 2019

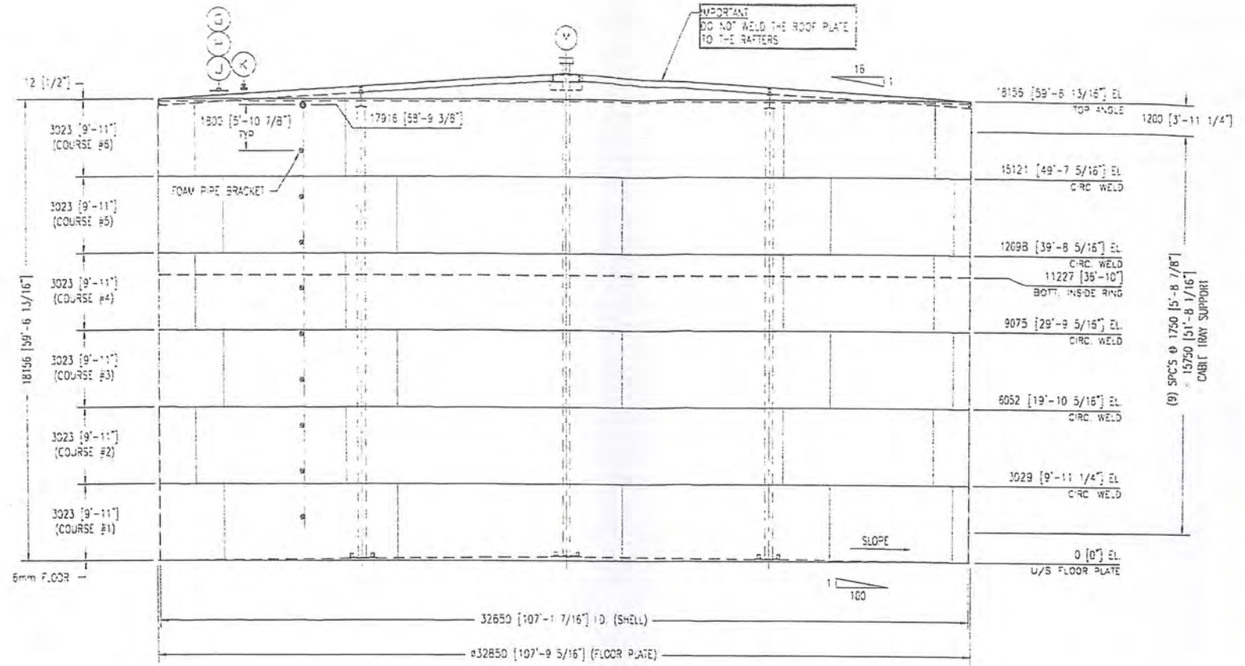
DRAWING NAME (YYMMDD): CAB 190903 MRTF Tk 5 & 6 Grnd Cables-Rods & Pipe Crossing.dwg



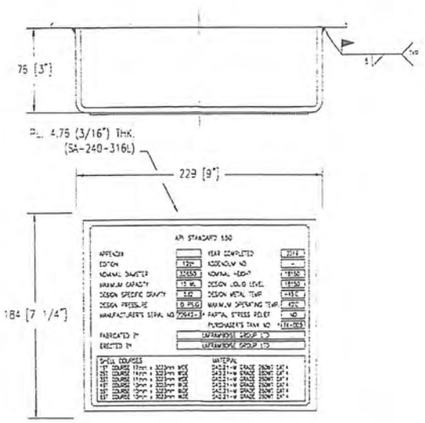
SECTION OF SHELL



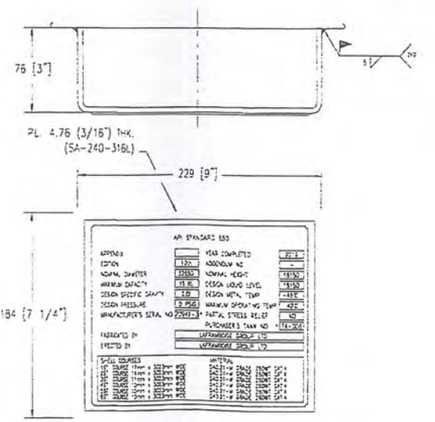
LONG. WELD (TYP)



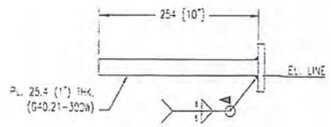
ELEVATION



NAME PLATE DETAIL - TK-005



NAME PLATE DETAIL - TK-006



INSIDE RING

DESIGN DATA

APPLICABLE STANDARD	API-650, 12TH EDITION & ABC OF CANADA 2010 EDITION			
FRANGIBLE ROOF	YES			
MEDIUM CIRCULATED	ARCTIC DIESEL			
DESIGN INTERNAL PRESSURE	ATMOSPHERIC			
DESIGN EXTERNAL PRESSURE	N/A			
DESIGN TEMPERATURE	40C [104°F] TO -45 °C [-50 °F]			
⚠ LOCATION:	MARY RIVER			
⚠ SEISMIC:	Sa (0.2) 0.342	Sa (0.1): 0.101	SITE CLASS: C	
⚠ ENVIR	Ss 2.5 kPa	S1 0.2 kPa		
SOIL BEARING:	168 kPa MAX			
WIND LOAD	REFERENCE VELOCITY PRESSURE = 0.55 kPa			
SPECIFIC GRAVITY	0.78 - 0.82			
HYDROSTATIC TEST PRESS:	NONE			
RADIOGRAPHY:	1% ACCORDANCE WITH API 650 SEC. 8 AND PER API 650 PARA 8.1.2 TO 8.1.8			
MT OR PT, IN ACCORDANCE TO API 650 SEC. 8	- 1ST PASS OF INTERNAL SHELL TO BOTTOM WELD - NON STRUCTURAL SMALL ATTACHMENTS - ALL SHELL WELDS			
MT IN ACCORDANCE TO API 650 PARA 8.3.2	YES, ON THE COMPLETED WELDS OF NOZZLE TO SHELL AND NOZZLE TO PAD JOINTS ACCEPTANCE CRITERIA PER ASME B & PV CODE SEC VIII DIV. 1 APPENDIX 12			
MT, IN ACCORDANCE TO API 650 SEC. 8	NOZZLE-TO-SHELL AND NOZZLE-TO-PAD WELDS ON BACK GOUGED PASS AND ON COMPLETED WELDS			
KEROSENE & CHALK TEST	CHALK & KEROSENE ON THE FIRST PASS OF THE EXTERNAL SHELL TO BOTTOM WELD			
VACUUM BOX LEAK TEST	- ON SHELL-TO-BOTTOM PLATE JOINT AFTER COMPLETION OF WELDING ON BOTH SIDES - ON ALL WELDS IN BOTTOM PLATE			
HARDNESS TEST:	N/A			
TOLERANCES:	IN ACCORDANCE with API 650 PARA 7.5			
THICKNESS SHELL:	1st COURSE: 17mm, 2nd. 14mm, 3rd: 11mm, 4th-5th-6th: 10mm			
THICKNESS BOTTOM	6mm			
THICKNESS ROOF	8mm			
CORROSION ALLOWANCE:	NONE			
STRESS RELIEF:	NO			
IMPACT TEST:	YES ON ALL WELDING PROCEDURES @ -45C IN ACCORDANCE with API 650 PARA 7.5			
WELDING PROCEDURE:	LATER			
INSPECTION BY:	CUSTOMER			
WEIGHTS:	EMPTY: 375,000Kg | FULL OF WATER 15,600,000Kg | OPERATING 12,830,000Kg			
CAPACITY:	15,000,000 LITERS			

MATERIAL SPECIFICATIONS

ITEM	MATERIAL
SHELL:	G40.21M GRADE 260 WT, CAT.4, KILLED AND FINE GRAIN PRACTICE
TOP & BOTTOM	G40.21M GRADE 260 WT, CAT.4, KILLED AND FINE GRAIN PRACTICE
TOP & BTM PL'S AT COLUMNS, DOUBLER PL'S UNDER COLUMNS & UNDER EXT. ATTACHMENTS, RAFTER CLIPS	G40.21M GRADE 260 WT, CAT.4, KILLED AND FINE GRAIN PRACTICE
⚠ REINFORCING PADS, SHELL MANWAY COLLARS, FLANGES AND COVERS & PAD FLANGES (N1 & N2)	SEE NOTE 7
GIRDERS (A SHAPES)	G40.21-350W
COLUMNS (HSS)	G40.21-350W
RAFTERS (C SHAPES)	G40.21-350W
ANGLES	G40.21-300W
TIE RODS	G40.21-300W
EXTERNAL STRUCT. STEEL BOLTING	A-325 GR .7, HOT DIPPED GALVANIZED TO ASTM A 153
STRUCT. STEEL BOLTING AT RAFTERS	A-325 GR .7
PIPE:	A-333 GR 6
FLANGES:	A-350 LF2 CLASS 1
FITTINGS:	A-420 WPL 6
STUDS/NUTS FOR FLANGES:	EXTERNAL A-193-97/A-194-2H CADMIUM PLATED TO ASTM B766-86 (2006) INTERNAL A-193 B8M/A-194-8/8M
NOZZLE W/BLIND GASKETS:	GARLOCK 09800 1/16" THK
MANWAY GASKETS:	GARLOCK 09800 1/16" THK

GENERAL NOTES

1. ALL MATERIALS SHALL BE CLEARLY IDENTIFIED AND PROVIDED WITH MILL TEST CERTIFICATES
2. ALL FLANGE BOLT HOLES SHALL STRADDLE THE CENTERLINE OF THE TANK
3. RE-PADS AT NOZZLES LOCATED ON THE SHELL SHALL BE PROVIDED WITH (1) ONE 1/4" NPT TAP HOLE AND SHALL BE AIR TESTED AT 15 PSIG WITH SOAP SOLUTION
4. VISUAL EXAMINATION, TO API 650 SECTION 8
   1. ALL SHELL PLATE BUTT WELDS
   2. ALL FILLET WELDS INCLUDING ROOF PLATE WELDS
   3. SHELL TO BOTTOM WELDS WELDS
      1) INTAL WELD PASS, INSIDE AND OUTSIDE
      2) FINISHED JOINT, INSIDE AND OUTSIDE
   4. WELDING OF NON STRUCTURAL SMALL ATTACHMENTS
5. SUPPLY WITH TANK (BY LAFRAMBOISE GROUP):
   - FOUR (4) ONLY BRAND AND JURS MODEL / 99181, 50mm [2"] WATER DRAW OFF VALVES AS DESCRIBED ON DRAWING #C-70942-IG-35.
   - ONE (1) ONLY BRAND AND JURS MODEL / 95021, 150mm [6"] GAUGE HATCH
6. SUPPLY WITH TANK (BY LAFRAMBOISE GROUP LTD):
   - ONE (1) ONLY ENDRESS HAUSER LEVELFLEX , AS DESCRIBED ON DRAWING #C-70942-IG-38
7. ⚠ REINFORCING PADS, SHELL MANWAY COLLARS, FLANGES AND COVERS & PAD FLANGES (N1 & N2) SHALL BE G40.21 GRADE 350 WT CAT.4 (-45°C), KILLED AND FINE GRAIN PRACTICE, EXCEPT THAT THE AVERAGE CHARPY V-NOTCH LONGITUDINAL VALUES OF 3 SPECIMENS SHALL NOT BE LESS THAN 41 J FOR 10<=40mm, 48 J FOR 40 < T <= 65mm AND 54 J FOR 65 < t < =150mm. NO MORE THAN ONE SPECIMEN VALUE SHALL BE LESS THAN THE SPECIFIED MINIMUM VALUE

AS BUILT AS BUILT

HATCH Vendor/Contractor Document Review

Doc Number	E353004-TM001-240-270-0010	SUB	02
Date Received			

Review Grade	Next Submittal Status
☐ C1 - Proceed to next submission & status ☐ C2 - Proceed with exceptions as noted to next submission & status	☐ Certified ☐ As-Built
☐ C3 - Do not proceed. Revise as noted & resubmit	☐ Internal Review ☐ Certified ☐ As-Built
Next Submittal Date:	
☑ C4 - No further submission required - Complete (select status below) ☐ Certified Final ☑ Final ☐ Cancelled ☐ Superseded	

Package Engineer: Name, signature and date
D. Fraser July 5, 2018

Review of any file, drawing or other item by Hatch is for its own internal purposes only and does not relieve any party of its responsibilities. Hatch makes no warranty or representation that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

REV	REVISION DESCRIPTION	BY	APP'D	DATE
1	UPDATED NAMEPLATE / TANK ID / DESIGN DATA MATERIAL GRADE (NOTE 7)	J.C.	DH	May 18/18
0	ISSUED FOR APPROVAL	J.C.	DH	May 23/18

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063" 12" TO 120"± 0.125" 121" TO 240"± 0.187" OVER 240" ± 0.250"	UNDER 300 ± 1.5 300 TO 3200 ± 3.1 3201 TO 6000 ± 4.7 OVER 6000 ± 6.35
ANGULAR ± 0.5° NOT EXCEED NO 0.060" PER 12" SURFACE FINISH (Ra) N7=63 N8=125 N9=250	ANGULAR ± 0.5° NOT EXCEED NO 1.5mm PER 300mm SURFACE FINISH (Ra) N7=1.6 N8=3.2 N9=6.4

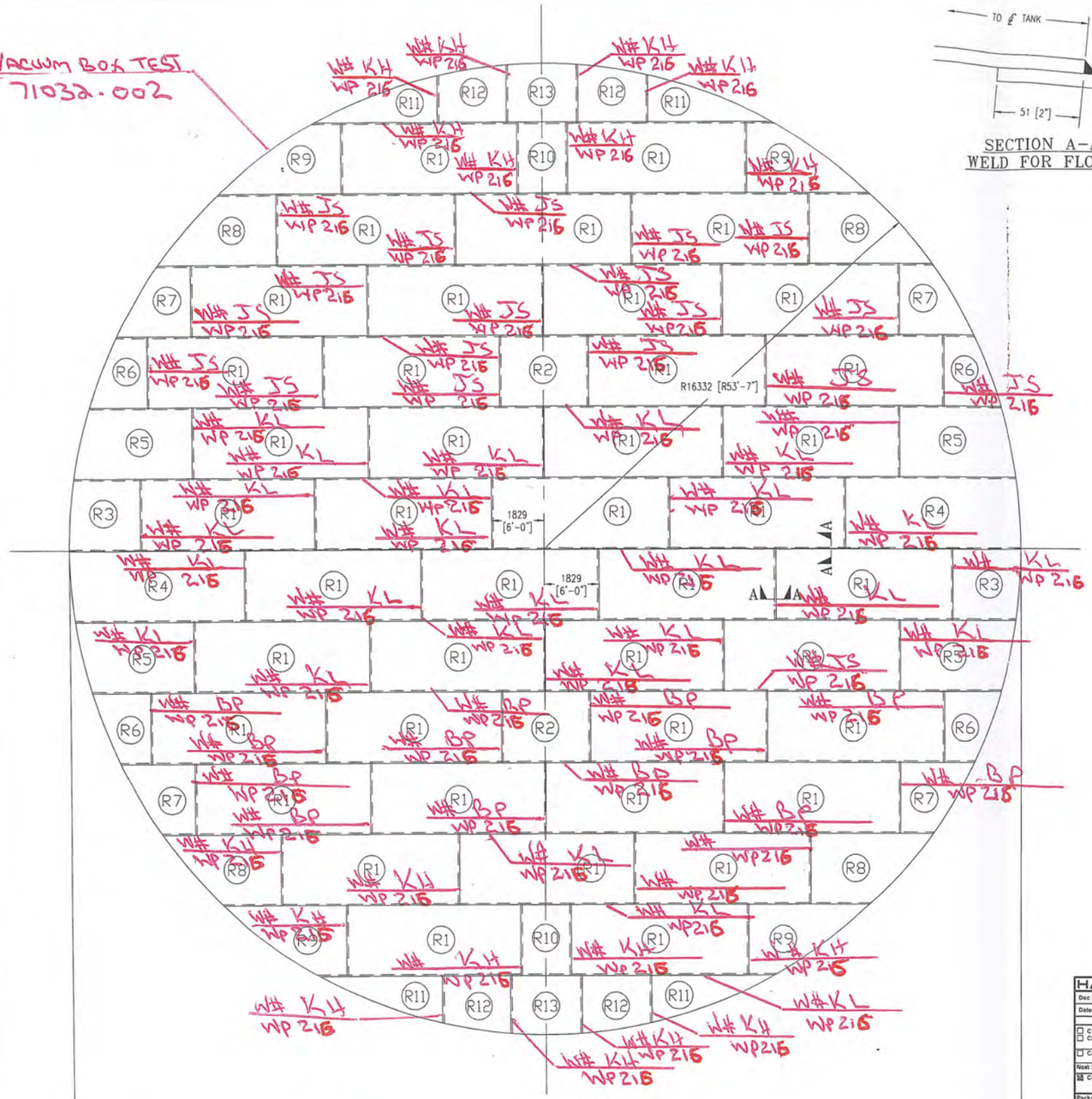
QTY. REQ'D.= (2) TWO
REF. -
-

STANDARD SYMBOLS
○ - DENOTES NOZZLE No
○ - DENOTES PART No.
△ - DENOTES REVISION No.
□ - DENOTES WELD No.
RT - DENOTES RADIOGRAPHY
UT - DENOTES ULTRA-SONIC
PT - DENOTES LIQUID PENETRANT

Laframboise Group Ltd.
1397 Rosemount Ave., Corwall, ONT. K6J 3E5
TEL: (613) 933-6564 FAX: (613) 933-9310

CUSTOMER: BAFFINLAND IRON MINES CORP.	CONTRACT NO.: 70942
PROJECT: MARY RIVER PROJECT - ERP PROJECT NO. H353004	
TITLE: 15,000,000 L ARCTIC DIESEL STORAGE TANKS GENERAL ARRANGEMENT	
TANK NO.: TK-005 & TK-006	
DRAWN BY: M.H.	DRAWING NO. C-70942-LG-31 REV 1
DATE: May 22, 2018	
SCALE: AS NOTED	
CHK'D BY: M.N.	

VACUUM BOX TEST
71032-002

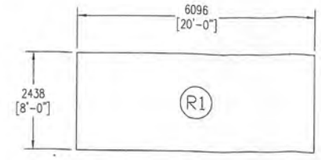


ROOF PLATE LAYOUT

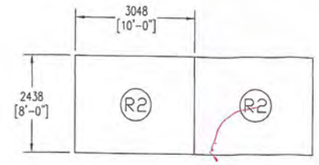
BSF-WP-216

JASON SEGUIN JS
KEVIN HARQUAIL KH
KEVIN LEGUE KL
DANE MCLAREN DM
BRADON POIRIER BP

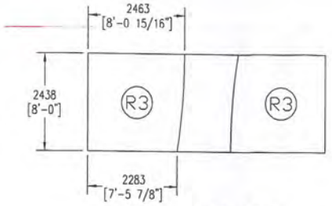
SECTION A-A
WELD FOR FLOOR



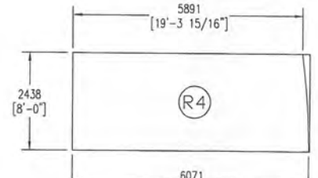
(42) PL. 8mm THK. x 8'-0" x 20'-0" lg.



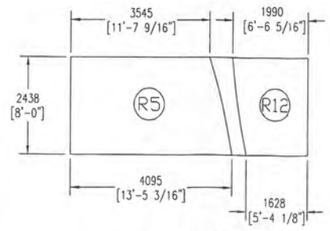
(1) PL. 8mm THK. x 8'-0" x 20'-0" lg.



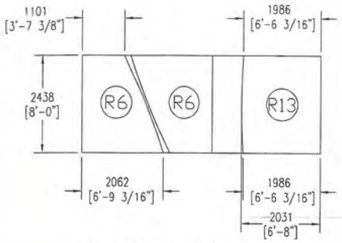
(1) PL. 8mm THK. x 8'-0" x 20'-0" lg.



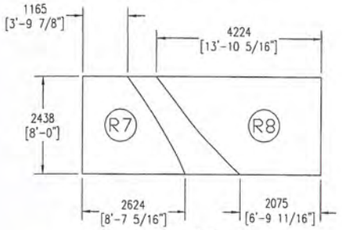
(2) PL. 8mm THK. x 8'-0" x 20'-0" lg.



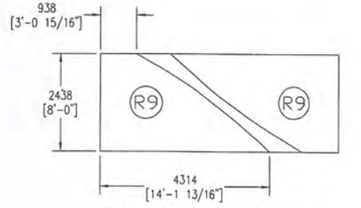
(4) PL. 8mm THK. x 8'-0" x 20'-0" lg.



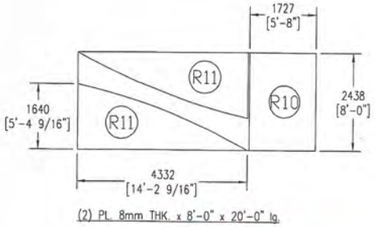
(2) PL. 8mm THK. x 8'-0" x 20'-0" lg.



(4) PL. 8mm THK. x 8'-0" x 20'-0" lg.



(2) PL. 8mm THK. x 8'-0" x 20'-0" lg.



(2) PL. 8mm THK. x 8'-0" x 20'-0" lg.

AS BUILT

TOTAL PLATES REQ'D
(60) PL. 8mm x 8'-0" x 20'-0" lg.
MAT'L: G40.21M GRADE 260WT CAT.4
KILLED AND FINE GRAIN PRACTICE

AS BUILT

HATCH Vendor/Contractor Document Review

Doc Number	E353004-TM001-240-270-0021	SUB	01
Date Received			

Review Grade	Next Submittal Status
☐ C1 - Proceed to next submission & status ☐ C2 - Proceed with exceptions as noted to next submission & status	☐ Certified ☐ As-Built
☐ C3 - Do not proceed. Revise as noted & resubmit.	☐ Internal Review ☐ Certified ☐ As-Built
Next Submittal Date:	
☒ C4 - No further submission required - Complete (when signoff below) ☐ Certified Final ☐ Final	☐ Cancelled ☐ Superseded

Package Engineer: Name, Signature and date
D. Fraser 1-June-2018

Reviewed only for general conformity with the Owner's specifications. Acceptance by the engineer does not warrant or represent that the information contained on the drawing documents or other accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

REV	REVISION DESCRIPTION	BY	APRV'D	DATE
0	ISSUED FOR APPROVAL	J.C.	D.H.	May 23/18

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063" 12" TO 120"± 0.125" 121" TO 240"± 0.187" OVER 240" ± 0.250"	UNDER 300 ± 1.5 300 TO 3000 ± 3.1 3001 TO 6000 ± 4.7 OVER 6000 ± 6.35
ANGULAR ± 0.5' NOT EXCEEDING 0.060" PER 12" SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	ANGULAR ± 0.5' NOT EXCEEDING 1.5mm PER 300mm SURFACE FINISH: (Ra) N7=1.6 N8=3.2 N9=6.4

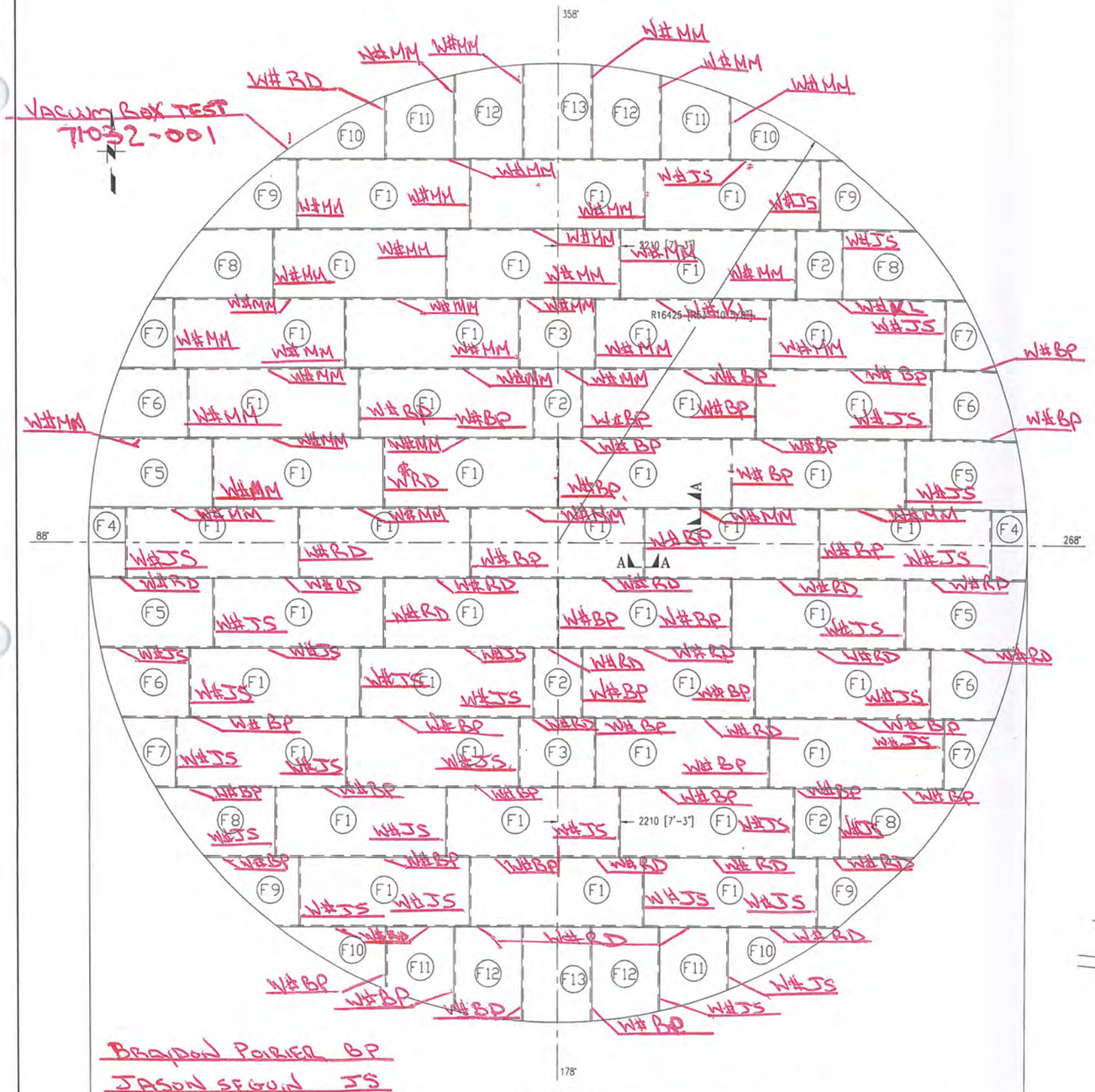
QTY. REQ'D.= (2) TWO
REF. -
-

STANDARD SYMBOLS
- ○ - DENOTES NOZZLE No.
- ⬡ - DENOTES PART No.
- △ - DENOTES REVISION No.
- □ - DENOTES WELD No.

RT - DENOTES RADIOGRAPHY
UT - DENOTES ULTRA-SONIC
PT - DENOTES LIQUID PENETRANT

Laframboise Group Ltd.
1397 Rosemount Ave., Cornwall, ONT, K6J 3E5
TEL: (613) 933-6664 FAX: (613) 933-9910

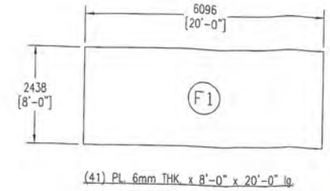
CUSTOMER: BAFFINLAND IRON MINES CORP.	CONTRACT NO.: 70942
PROJECT: MARY RIVER PROJECT - ERP PROJECT NO. H353004	
TITLE: 15,000,000 L ARCTIC DIESEL STORAGE TANKS ROOF PLATE LAYOUT	
TANK NO.: -	
DRAWN BY: M.H.	DRAWING NO. C-70942-LG-52 REV 0
DATE: May 22, 2018	
SCALE: AS NOTED	
CHK'D BY: M.N.	



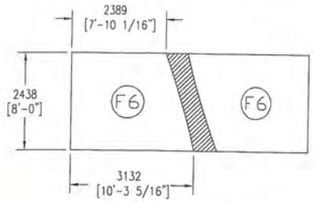
BRAYDON POIRIER BP
JASON SEGUIN JS
RYAN DAIGLE RD
KEVIN LEGUS KL
MURRAY McLAREN MM

WP# BSF-216 (SMAW)

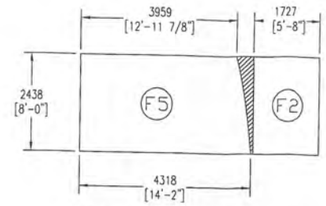
FLOOR PLATE LAYOUT



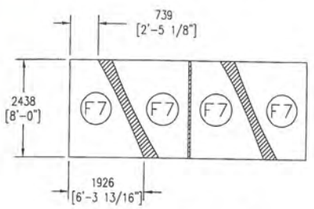
(41) PL. 6mm THK. x 8'-0" x 20'-0" lg.



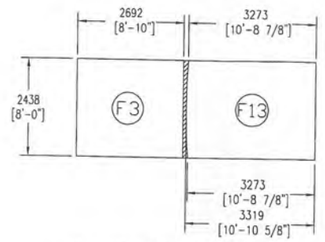
(2) PL. 6mm THK. x 8'-0" x 20'-0" lg.



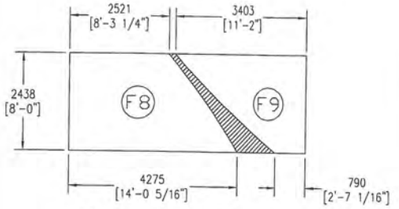
(4) PL. 6mm THK. x 8'-0" x 20'-0" lg.



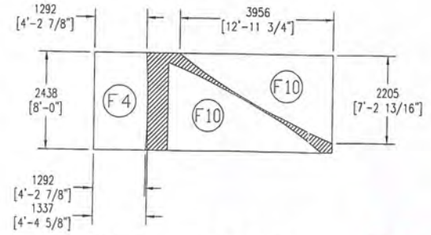
(1) PL. 6mm THK. x 8'-0" x 20'-0" lg.



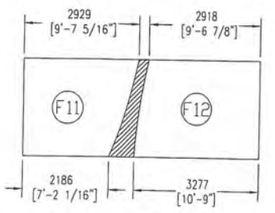
(2) PL. 6mm THK. x 8'-0" x 20'-0" lg.



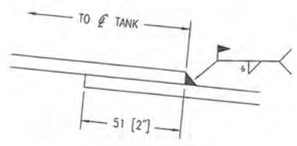
(4) PL. 6mm THK. x 8'-0" x 20'-0" lg.



(2) PL. 6mm THK. x 8'-0" x 20'-0" lg.



(4) PL. 6mm THK. x 8'-0" x 20'-0" lg.



SECTION A-A
WELD FOR FLOOR

AS BUILT

TOTAL PLATES REQ'D
(60) PL. 6mm x 8'-0" x 20'-0" lg.
MAT'L: G40.21M GRADE 260WT CAT.4
KILLED AND FINE GRAIN PRACTICE

HATCH Vendor/Contractor Document Review

Doc Number	E353004-TM001-240-270-0020	SUB	01
Date Received			

Review Grade	Next Submittal Status
☐ C1 - Proceed to next submission & status	☐ Certified
☐ C2 - Proceed with exceptions as noted to next submission & status	☐ As-Built
☐ C3 - Do not proceed. Revise as noted & resubmit	☐ Internal Review
Next Submittal Date:	☐ Certified ☐ As-Built
☒ C4 - No further submission required - Complete (select status below)	
☐ Certified Final ☐ Final	☒ Cancelled ☐ Superseded

Package Engineer: Name, Signature and date
D. Fraser 1-June-2018
Reviewer stamp for general conformance with the Contract Documents. Acceptance by the engineer does not remove or represent that the information (CWA) not on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

REV	REVISION DESCRIPTION	BY	APR'D	DATE
0	ISSUED FOR APPROVAL	J.C.	D.H.	May 23/18

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120" ± 0.125"	300 TO 3000 ± 3.1
121" TO 240" ± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5'	ANGULAR ± 0.5'
NOT EXCEEDING 0.060" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	SURFACE FINISH: (Ra) N7=1.6 N8=3.2 N9=6.4

QTY. REQ'D.= (2) TWO
REF. -

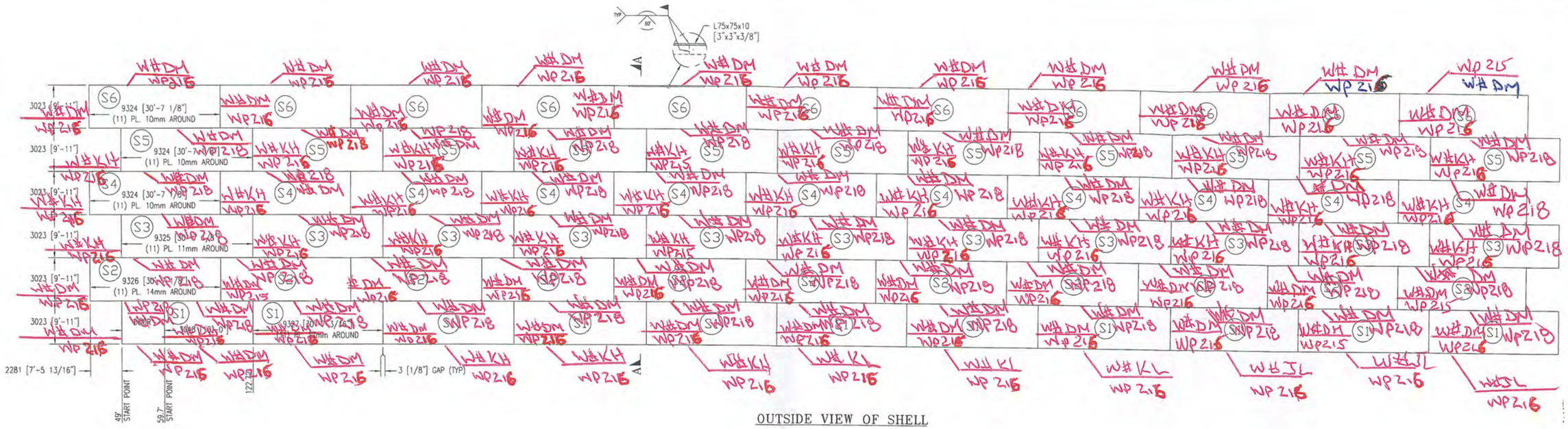
STANDARD SYMBOLS
- ○ - DENOTES NOZZLE No.
- ⬡ - DENOTES PART No.
- △ - DENOTES REVISION No.
- □ - DENOTES WELD No.

RT - DENOTES RADIOGRAPHY
UT - DENOTES ULTRA-SONIC
PT - DENOTES LIQUID PENETRANT

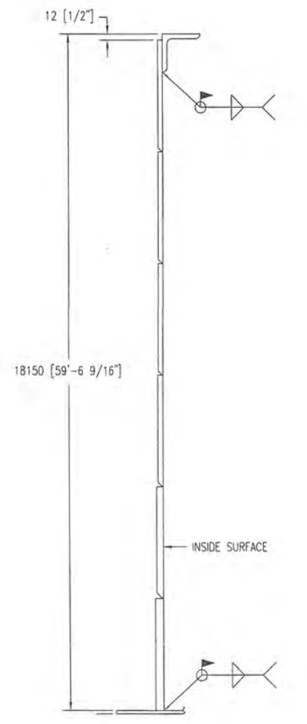
AS BUILT

Laframboise Group Ltd
1397 Rosemount Ave., Cornwall, ONT. K6J 3E5
TEL: (613) 933-6664 FAX: (613) 933-9910

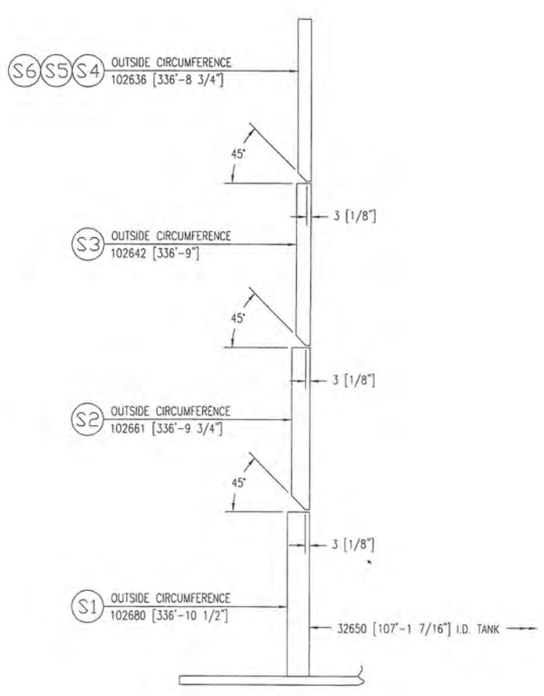
CUSTOMER: BAFFINLAND IRON MINES CORP.	CONTRACT NO.: 70942
PROJECT: MARY RIVER PROJECT - ERP PROJECT NO. H353004	
TITLE: 15,000,000 L ARCTIC DIESEL STORAGE TANKS ORIENTATION, NOZZLES DESCRIPTION	
TANK NO.: -	
DRAWN BY: M.H.	DRAWING NO. C-70942-LG-51 REV 0
DATE: May 22, 2018	
SCALE: AS NOTED	
CHK'D BY: M.N.	



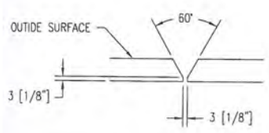
OUTSIDE VIEW OF SHELL



SECTION A-A



HORIZONTAL JOINT PREPARATION



VERTICAL JOINT PREPARATION

BSF - WP 218
BSF - WP 216

DANE McLAREN DM
KEVIN HARQUAIL KH
JAMES LEGUE JL

HATCH Vendor/Contractor Document Review

Doc Number	E353004-TM001-240-270-0022	SUB	01
Date Received			

Review Grade	Next Submittal Status
☐ C1 - Proceed to next submission & status ☐ C2 - Proceed with exceptions as noted to next submission & status	☐ Certified ☐ As-Built
☐ C3 - Do not proceed. Revise as noted & resubmit	☐ Internal Review
Next Submittal Date:	☐ Certified ☐ As-Built
☒ C4 - No further submission required - Complete (select status below) ☐ Certified Final ☐ Final	☒ Cancelled ☐ Superseded

Package Engineer: Name, signature, and date
D. Fraser 1-June-2018

Reviewed only for general conformance with the contract documents. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is error, error or complete. The sole responsibility for correct design, details & procedures, shall remain with the party submitting the drawing/document.

TOTAL PLATES REQ'D
(11) PL. 17mm x 120" x 368" lg.
(11) PL. 14mm x 120" x 368" lg.
(11) PL. 11mm x 120" x 368" lg.
(33) PL. 10mm x 120" x 368" lg.
MAT'L: G40.21M GRADE 260WT CAT.4
KILLED AND FINE GRAIN PRACTICE

AS BUILT

AS BUILT

REV	REVISION DESCRIPTION	BY	APRV'D	DATE
0	ISSUED FOR APPROVAL	J.C.	D.H.	May 23/18

TOLERANCES
UNLESS OTHERWISE NOTED

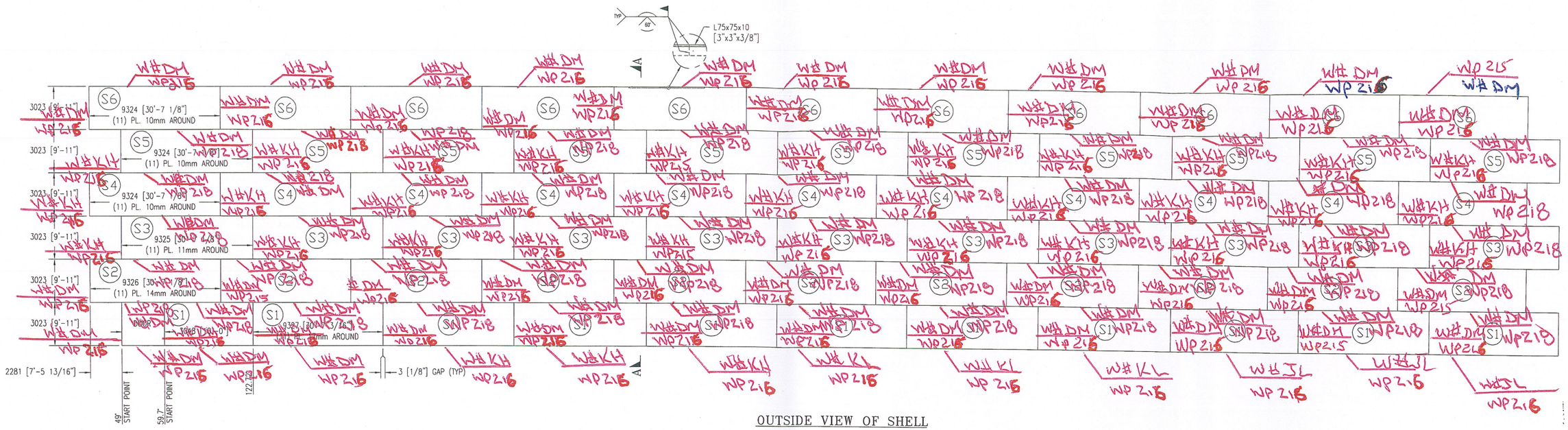
INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120" ± 0.125"	300 TO 3000 ± 3.1
121" TO 240" ± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5'	ANGULAR ± 0.5'
NOT EXCEEDING 0.060" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	SURFACE FINISH: (Ra) N7=1.6 N8=3.2 N9=6.4

QTY. REQ'D.= (2) TWO
REF. –

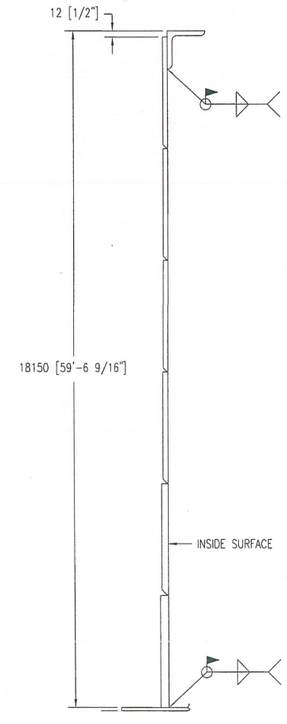
STANDARD SYMBOLS
○ – DENOTES NOZZLE No.
⬡ – DENOTES PART No.
△ – DENOTES REVISION No.
□ – DENOTES WELD No.
RT – DENOTES RADIOGRAPHY
UT – DENOTES ULTRA-SONIC
PT – DENOTES LIQUID PENETRANT

Laframboise Group Ltd.
1397 Rosemount Ave., Cornwall, ONT. K6J 3E5
TEL: (613) 933-6664 FAX: (613) 933-9910

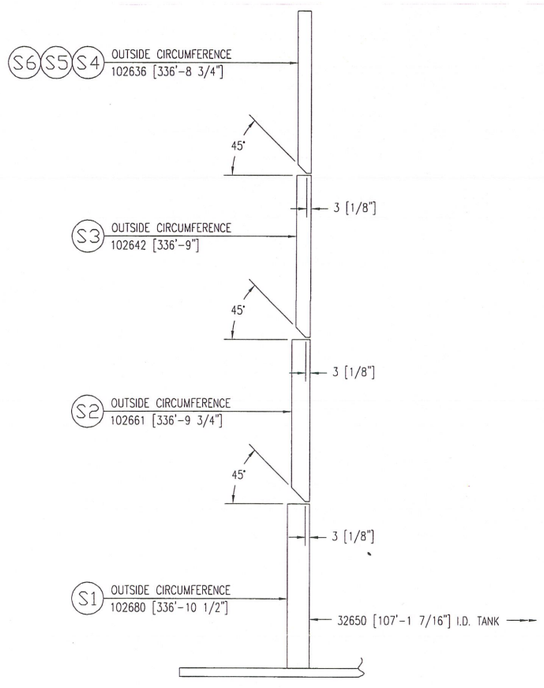
CUSTOMER: BAFFINLAND IRON MINES CORP.	CONTRACT NO.: 70942
PROJECT: MARY RIVER PROJECT - ERP PROJECT NO. H353004	
TITLE: 15,000,000 L ARCTIC DIESEL STORAGE TANKS SHELL PLATES LATOUT	
TANK NO.: –	
DRAWN BY: M.H.	DRAWING NO. C-70942-LG-53 REV 0
DATE: May 22, 2018	
SCALE: AS NOTED	
CHK'D BY: M.N.	



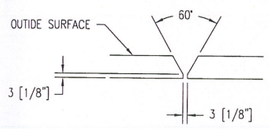
OUTSIDE VIEW OF SHELL



SECTION A-A



HORIZONTAL JOINT PREPARATION



VERTICAL JOINT PREPARATION

BSF - WP 218

BSF - WP 216

DAVE McLAREN DM
KEVIN HARQUAIL KH
JAMES LEGUE JL

TOTAL PLATES REQ'D
(11) PL. 17mm x 120" x 368" lg.
(11) PL. 14mm x 120" x 368" lg.
(11) PL. 11mm x 120" x 368" lg.
(33) PL. 10mm x 120" x 368" lg.
MAT'L: G40.21M GRADE 260WT CAT.4
KILLED AND FINE GRAIN PRACTICE

AS BUILT

HATCH Vendor/Contractor Document Review

Doc Number	E353004-TM001-240-270-0022	SUB	01
Date Received			

Review Grade	Next Submittal Status
☐ C1 - Proceed to next submission & status ☐ C2 - Proceed with exceptions as noted to next submission & status	☐ Certified ☐ As-Built
☐ C3 - Do not proceed. Revise as noted & resubmit	☐ Internal Review
Next Submittal Date:	☐ Certified ☐ As-Built
☒ C4 - No further submission required - Complete (select status below) ☐ Certified Final ☐ Final	☒ Cancelled ☐ Superseded

Package Engineer: Name, signature, and date
D. Fraser 1-June-2018

Reviewed only for general conformance with the contract documents. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is error, error or complete. The note responsibly for correct design, details & dimensions shall remain with the party submitting the drawings/documents.

0	ISSUED FOR APPROVAL	J.C.	D.H.	May 23/18
REV	REVISION DESCRIPTION	BY	APRV'D	DATE

QTY. REQ'D.= (2) TWO

REF. –
–

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120" ± 0.125"	300 TO 3000 ± 3.1
121" TO 240" ± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5°	ANGULAR ± 0.5°
NOT EXCEEDING 0.060" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	SURFACE FINISH: (Ra) N7=1.6 N8=3.2 N9=6.4

STANDARD SYMBOLS
○ – DENOTES NOZZLE No.
⬡ – DENOTES PART No.
△ – DENOTES REVISION No.
□ – DENOTES WELD No.
RT – DENOTES RADIOGRAPHY
UT – DENOTES ULTRA-SONIC
PT – DENOTES LIQUID PENETRANT

AS BUILT

Laframboise Group Ltd.
1397 Rosemount Ave., Cornwall, ONT. K6J 3E5
TEL: (613) 933-6664 FAX: (613) 933-9910

CUSTOMER: BAFFINLAND IRON MINES CORP.	CONTRACT NO.: 70942
PROJECT: MARY RIVER PROJECT - ERP PROJECT NO. H353004	
TITLE: 15,000,000 L ARCTIC DIESEL STORAGE TANKS SHELL PLATES LATOUT	
TANK NO.: –	
DRAWN BY: M.H.	DRAWING NO. C-70942-LG-53 REV 0
DATE: May 22, 2018	
SCALE: AS NOTED	
CHK'D BY: M.N.	

Appendix B

Earthworks and Secondary Containment

E353004-CC005-130-066-0004 Mine Site Tank Farm

The above report includes the following sections as submitted by Nuna East Ltd:

- Section 1: Completion of Construction Declaration/Transfer of Care, Custody & Control Forms
- Section 2: Inspection and Test Plan
- Section 3: Redline Drawings
- Section 4: Survey
- Section 5: Sieve Analysis / Aggregate Statements of Compliance
- Section 6: Request for Information
- Section 7: Non-Conformance Reports
- Section 8: Communications : ECNs, SIs, CVRs & Emails
- Section 9 : Land Disturbance Forms
- Section 10 : Quality Control Reports
- Section 11 ; Sub-Contractor Reports / QC Turnover Packages
- Section 12: Signature Log
- Section 13: Work plan
- Section 14: Walkdown
- Section 15: Deficiency / Punchlist Record
- Section 16: Construction Photographs
- Section 17: Acceptance of Completion of Construction Declaration
- Section 18: QA/QC Documentation Turnover Review and Release

Appendix C

Tank 005

E353004-TM001-130-067-0008 TK 005 Arctic Fuel Diesel History Document

The above tank data book typically includes the following sections as submitted by Groupe Laframboise Ltee:

- Section 1: Manufacturer's Certification
- Section 2: Inspection and Test Plan
- Section 3: Tank Strapping (Calibration)
- Section 4: TK-005 NDE (UT/MT Inspection)
- Section 5: Vacuum box Testing
- Section 6: Repad Pressure Test Records
- Section 7: Mapped Drawings/As Builts
- Section 8: Weld Procedures/Welder Qualifications

Appendix D

Contact Information as per Components 1 and 2 of the Commercial Lease Requirement

Company	Address	Contact Numbers
Hatch (Global Corporate Office) (EPCM Contractor)	Sheridan Science & Technology Park 2800 Speakman Drive Mississauga, Ontario L5K 2R7 Canada	Tel: 1-905-855-7600 Fax: 1-905-855-8270
Nuna East Limited	9839 – 31 Avenue NW Edmonton, Alberta T6N 1C5 Canada	Tel: 1-780-434-9114 Fax: 1-780-434-7758
Laframboise Group	1397 Rosemount Ave. Cornwall, Ontario K6J 3E5 Canada	Tel: 1-613-933-6664, Ext. 313 Fax: 1-613-933-9910

Role	Name	Email
Preparer of Report	Glen Peace, P.Eng.	glen.peace@hatch.com
Responsible for Construction	Marlon Coakley	marlon.coakley@hatch.com
Baffinland Representative	Christopher Murray	Christopher.murray@baffinland.com

Appendix E

Map to Show Construction in Relation to Lease Boundaries and Water Bodies

554,000 555,000 556,000 557,000 558,000 559,000 560,000 561,000 562,000 563,000 564,000 565,000

7,917,000 7,916,000 7,915,000 7,914,000 7,913,000 7,912,000

MINE SITE TANK FARM

0 20 40 Meters

KM 97 BORROW SOURCE

OPEN BURN LOCATION

WASTE MANAGEMENT BUILDING

HAZARDOUS WASTE BERM

SITE SERVICES SHOP

HELICOPTER PAD AERODROME

QMR2

WAREHOUSE

ORE HAUL TRUCK PAD

AIRSTRIP

SAILIIVIK CAMP

MINE SITE TANK FARM

MINE SITE COMPLEX

LAYDOWN 2

Camp Lake

Sheardown Lake NW

Sheardown Lake SE

WASTE ROCK FACILITY WATER TREATMENT PLANT

SURFACE WATER MANAGEMENT POND

WASTE ROCK FACILITY

MS-08 DISCHARGE LINE

110 KM LAYDOWN AREA

ULTIMATE DEPOSIT 1 PIT LIMITS

HAUL ROAD

QUARRY D1Q1

ACTIVE MINING AREA

QUARRY D1Q2

EXPLOSIVE MAGAZINE

MARY RIVER TRIBUTARY F

MARY RIVER

CRUSHER FACILITY

SURFACE WATER MANAGEMENT POND

LANDFILL

EMULSION PLANT

EFFLUENT DISCHARGE LOCATION

LEGEND

- Borrow Area
- Quarry Area
- Project Development Area
- Commercial Lease Boundary
- Current Infrastructure

ᓄᓇᕗᑦ ᐅᓴᖅᓯᐅᑦᑎᐊᓕᒃ

MARY RIVER PROJECT

Mine Site Tank Farm

Projection: NAD 1983 UTM ZONE 17N.
Base Map: © 2019 Digital Global, Inc.
Imagery and Infrastructure are representative as of August 2019.

0 100 200 400 600 800 Meters

Scale 1:30,000

N

Baffinland

ᑎᑎᕋᐅᓯᖏᓐᓄᑦ FIGURE 1

SAVED: C:\Users\katie.mcguire\Documents\4 - Maps\Reporting\CSR\Mine Site Tank Farm\BMM_Fig 1 MineSite_TankFarm.mxd; 08-Apr-20

Appendix F

CCME Code Compliance Review

Part	Section	Reference	Requirement	Comment
Part 1: Application and Definitions	Not Applicable.	Not Applicable.	Not Applicable.	Not applicable.
Part 2: Registration and Approval of Storage Tank Systems	2.2 Registration of Existing Storage Tank Systems	2.2.1	The owner of an existing storage tank system shall register all storage tanks of the system with the authority having jurisdiction in a manner and timeframe prescribed by the authority having jurisdiction.	Not applicable (new system). See 2.4.1 and 2.4.2 below.
Part 2: Registration and Approval of Storage Tank Systems	2.2 Registration of Existing Storage Tank Systems	2.2.2	Registration of an existing storage tank system shall be conducted by completing and filing a registration form in a manner specified by the authority having jurisdiction. (See Appendix C)	Not applicable, new installation
Part 2: Registration and Approval of Storage Tank Systems	2.2 Registration of Existing Storage Tank Systems	2.2.3	The owner of an existing storage tank system shall identify registered tanks in a manner and time frame specified by the authority having jurisdiction.	Not applicable, new installation
Part 2: Registration and Approval of Storage Tank Systems	2.2 Registration of Existing Storage Tank Systems	2.2.4	The authority having jurisdiction may deem the age of an existing storage tank system to be unknown unless the owner provides the authority having jurisdiction with either the date of installation and/or the date of manufacture.	Not applicable; this is an new installation
Part 2: Registration and Approval of Storage Tank Systems	2.3 Approval of Storage Tank Systems	2.3.1	No person shall construct or cause to construct, install, *alter*, or operate a *storage tank system* unless all required permits and approvals have been obtained from the *authority having jurisdiction*.	Complies; permit for the tank construction and containment dyke was obtained from the Nunavut Water Board and the Qikiqtani Inuit Association. Requirements to operate a storage tank system are being confirmed with the Fire Marshal and will be met as required by the Fire Marshal.
Part 2: Registration and Approval of Storage Tank Systems	2.4 Registration of New Storage Tank Systems	2.4.1	The *owner* of a *new storage tank system* installed after a date specified by the *authority having jurisdiction* shall register the *storage tank system*.	Within Nunavut the authority having jurisdiction is the Fire Marshal (per Appendix C of CCME). Requirements for registration are being confirmed with the Fire Marshal and wil be met as required by the Fire Marshal.
Part 2: Registration and Approval of Storage Tank Systems	2.4 Registration of New Storage Tank Systems	2.4.2	The new *storage tank system* shall be registered by completing and filing a registration form as specified by the *authority having jurisdiction.*	Within Nunavut the *authority having jurisdiction* is the Fire Marshal (per Appendix C of CCME). Requirements for registration are being confirmed with the Fire Marshal and wil be met as required by the Fire Marshal.
Part 2: Registration and Approval of Storage Tank Systems	2.4 Registration of New Storage Tank Systems	2.4.3	The *owner* of a new *storage tank system* shall identify registered tanks in a manner specified by the *authority having jurisdiction*.	Within Nunavut the authority having jurisdiction is the Fire Marshal (per Appendix C of CCME). Requirements for registration are being confirmed with the Fire Marshal and wil be met as required by the Fire Marshal.
Part 2: Registration and Approval of Storage Tank Systems	2.5 Product Supply and Registration	2.5.1	After a date specified by the *authority having jurisdiction*, no person shall transfer or cause to be transferred *petroleum* or *allied petroleum products* to a *storage tank system* unless the *storage tank system* has been registered with the *authority having jurisdiction*.	See 2.4.1, 2.4.2 and 2.4.3 above.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.1	Except as provided in this Part, the design, fabrication and installation of an *aboveground storage tank system* shall be in conformance with the NFCC.	The new tank farm components have been installed in conformance with Section 4 of the NFCC.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.2	Except as provided in this Part, the design and installation of an *aboveground storage tank system* connected to an oil-burning appliance and equipment that comes within the scope of CAN/CSA-B139-00,"Installation Code for Oil Burning Equipment" shall be in conformance with that Code.	Not applicable; the system is not connected to an oil-burning appliance or equipment.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.3	An *aboveground storage tank*, components, and accessories, for which there is a recognized standard, shall be *approved* only for the uses indicated under the standard.	All components, accessories and trim comply to this section.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.4	A company or individual that is authorized by the *authority having jurisdiction* shall verify that the design and installation of an *aboveground storage tank system* meets the requirements of this Code or other requirements as specified by the *authority having jurisdiction*.	Hatch has reviewed the as-builts, as constructed status of the facility and confirms it meets the applicable requirements of this code.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.5	An *aboveground storage tank system* shall be installed by a company or individual that is authorized by the *authority having jurisdiction*.	Hatch is registered to practice engineering in Nunavut and has completed the design, managed the construction and reviewed all as-built documents pertaining to this tank system.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.6	An *aboveground storage tank* shall be equipped to control emissions of volatile organic compounds in conformance with CCME PN 1180, "Environmental Guideline for Controlling Emissions of Volatile Organic Compounds from Aboveground Storage Tanks". (See Appendix B, note B.3.2.6)	Not applicable; stored fuel has vapour pressure less than 10kPA. Arctic Grade Diesel vapour pressure is 1kPA@20C per MSDS.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.7(1)	The *owner* of an *aboveground storage tank system* shall provide an as-built drawing to the *authority having jurisdiction* in the manner and time frame as specified by the *authority having jurisdiction*.	As-built drawings form part of this report.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.7(2)	As-built drawings for an aboveground storage tank system shall include, as a minimum: (a) the outline of all storage tanks; (b) the centerline of all piping or piping groups; (c) the centerline of all underground electrical power and monitor sensor conduit; (d) building foundation outlines; (e) secondary containment systems; and (f) property lines.	As-built drawings forming part of this report meet the minimum requirements as stated in this section.

Part	Section	Reference	Requirement	Comment
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.8(1)	No person shall install an aboveground storage tank system unless: (a) required permits or approvals have been obtained from the authority having jurisdiction; (b) plans, drawings and specifications of the system or equipment have been examined by the authority having jurisdiction; and (c) the plans, drawings and specifications referred to in Clause (b) bear the stamp and signature of a professional engineer licensed to practice in the province/territory.	(a) Permit for the tank construction and containment dyke was obtained from the Nunavut Water Board and the Qikiqtani Inuit Association. (b) Drawings were submitted to the above authorities. (c) Submitted issued for construction (IFC) drawings to the authorities bear the stamp and signatures of Registered Professional Engineers.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.9	An *aboveground storage tank system* shall be designed and installed in accordance with the manufacturer's instructions, the appropriate standards, and this Code.	The above ground tanks have been constructed in conformance with API 650. The secondary containment has been constructed in conformance with this code and the NFCC.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.3 Field-erected Storage Tank Systems	3.3.1(1)	A field-erected storage tank system shall: (a) have corrosion protection in conformance with Section 3.8; (b) have a secondary containment system in conformance with Section 3.9; (c) have leak detection in conformance with Part 6; (d) have containment sumps, as applicable; (e) be provided with overfill protection: (i) for pipeline delivery, in the form of an alarm system that will automatically alert pipeline or terminal personnel so that action can be taken to prevent the storage tank from being overfilled; (ii) for truck, rail, ship, or barge delivery, in the form of a visual and audible alarm system for detecting a high level that will activate and alert personnel in enough time to terminate the flow of the product to the storage tank and prevent an overfill (See Appendix B, note B.3.3.1(1)(e)(ii)); or (iii) in conformance with API RP 2350-96, "Overfill Protection for Storage Tanks in Petroleum Facilities"; and (f) have piping in conformance with Part 5, as applicable.	(a) There are no underground steel piping or tanks in this facility. The use of secondary containment liner and low corrosion rates preclude the use of corrosion protection (CP) on the tank floor. (b) Conforms with Section 3.9. (c) Conforms, see Section 6 of this table. (d) Not applicable. (e) i) Not applicable. ii) Not applicable. iii) Conforms. Existing design includes a radar gauge and local display. Facility is classified as Category 1 under API 2350. A Category 1 facility shall be operated as a fully-attended facility for receipts with manual monitoring continuously during receipt. (f) Conforms.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.3 Field-erected Storage Tank Systems	3.3.2	If vapour balancing or vapour recovery systems are required, they shall be designed and built in conformance with CCME PN 1057, "Environmental Code of Practice for Vapour Recovery in Gasoline Distribution Networks".	Not applicable.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.4 Shop-fabricated Storage Tank Systems	3.4.1(1)	A shop-fabricated storage tank system shall: (a) have corrosion protection in conformance with Section 3.8; (b) have a secondary containment system in conformance with Section 3.9; (c) have leak detection in conformance with Part 6; (d) have containment sumps, as applicable; (e) except as specified in Sentence 3.4.1(2), be provided with overfill protection: (i) compatible with the intended method of filling; (ii) designed, built, and approved in conformance with ORD-C58.15- 1992, "Overfill Protection Devices for Flammable Liquid Storage Tanks," which will prevent filling the tank beyond 95% of the tank's capacity or activate an audible or combined audible/visual alarm at a product level of 90% of the tank's capacity; and (iii)where a high-level alarm system is used, with audible and visual alarms located where personnel are constantly on duty during the product transfer operation and can promptly stop or divert delivery to the tank; and (f) have piping in conformance with Part 5, as applicable.	Not applicable; tank systems are field-erected.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.4 Shop-fabricated Storage Tank Systems	3.4.1(2)	A shop-fabricated *storage tank* system having a capacity of less than 5 000 L may be provided with overfill protection in the form of visual monitoring and gauging of the level in the *storage tank system* by trained employees in constant attendance throughout the transfer operation and who are located so as to be able to promptly shut down the flow, or communicate immediately with the person controlling the delivery so that the flow can be shut down promptly.	Not applicable; tank systems are field-erected.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.4 Shop-fabricated Storage Tank Systems	3.4.2	A horizontal *storage tank* shall be supported above grade level.	Not applicable; tank systems do not include horizontal storage tanks.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.4 Shop-fabricated Storage Tank Systems	3.4.3	Where there is a dispenser, *leak detection* for the dispenser and related components shall be in conformance with Part 6.	Conforms; visual leak detection. See 6.7.2(1) Table 4 and Table 6.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.5 Aboveground Storage Tank Systems for Storing Used Oil	Not Applicable.	Not Applicable.	Not applicable.

Part	Section	Reference	Requirement	Comment
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.6 Design Standards	3.6.1(1)	Based on the design, an aboveground storage tank shall be designed, built, and approved in conformance with the following, as applicable: a) API Std 650-98, "Welded Steel Tanks for Oil Storage"; b) ULC-S601-2000, "Aboveground Horizontal Shop Fabricated Steel Tanks"; c) CAN/ULC-S602-1992, "Aboveground Steel Tanks for Fuel Oil and Lubricating Oil"; d) ULC-S630-2000, "Aboveground Vertical Shop Fabricated Steel Tanks"; e) CAN/ULC-S643-2000, "Aboveground Shop Fabricated Steel Utility Tanks"; f) ULC-S652-1993, "Tank Assemblies for Collection of Used Oil"; g) ULC-S653-1994, "Contained Aboveground Steel Tank Assemblies"; h) ORD-C142.5-1992, "Aboveground Concrete Encased Steel Tank Assemblies"; i) ORD-C142.18-1995, "Aboveground Rectangular Steel Tanks"; j) ORD-C142.21-1995, "Aboveground Used Oil Systems"; k) ORD-C142.22-1995, "Contained Aboveground Vertical Steel Tank Assemblies"; or (l) ORD-C142.23-1991, "Aboveground Waste Oil Tanks".	The tanks have been designed and constructed in conformance with API 650 - 12th Edition.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.6 Design Standards	3.6.2	An *overfill protection device* shall be designed, built, and *approved* in conformance with ORD-C58.15-1992, "Overfill Protection Devices for Flammable Liquid Storage Tanks".	Not applicable; see 3.3.1(1)(e)(iii). All product transfer at the Mary Rive Mine Site occurs by fuel truck delivery.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.6 Design Standards	3.6.3	A *containment sump* shall be designed, built, and *approved* in conformance with ORDC107.21- 1992, "Under-Dispenser Sumps".	Not applicable; tank systems do not include containment sumps.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.6 Design Standards	3.6.4	A *liner* shall be designed, built, and *approved* in conformance with ORD-C58.9- 1997, "Secondary Containment Liners for Underground and Aboveground Tanks".	The secondary containment dyke has been constructed with a Layfield Hazguard 535 synthetic liner installed and tested in conformance with this code and in accordance with manufacturers instructions.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.6 Design Standards	3.6.5	An *aboveground storage tank* designed to contain an *allied petroleum product* shall be designed, built, and *approved* for use with that product.	Not applicable.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.6 Design Standards	3.6.6(1)	An aboveground storage tank built in conformance with: (a) API Spec 12B-95, "Bolted Tanks for Storage of Production Liquids"; (b) API Spec 12D-94, "Field Welded Tanks for Storage of Production Liquids"; or (c) API Spec 12F-94, "Shop Welded Tanks for Storage of Production Liquids" shall be used only for the storage of production petroleum and allied petroleum products.	Not applicable.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.7 Repair, Alteration, Reconstruction, and Relocation	3.7.1(1)	The repair, alteration, reconstruction, or relocation of an aboveground storage tank system shall be done in conformance with the technical requirements of, as applicable: (a) ULC-S601(A)-2001, "Shop Refurbishing of Aboveground Horizontal Shop Fabricated Steel Tanks"; (b) ULC-S630(A)-2001, "Shop Refurbishing Aboveground Vertical Shop Fabricated Steel Tanks"; (c) API Std 653-01, "Tank Inspection, Repair, Alteration, and Reconstruction"; (d) STI SP001-00, "Standard for Inspection of In-service Shop Fabricated Aboveground Tanks for the Storage of Flammable and Combustible Liquids"; or (e) the special acceptance procedures of ULC or API.	Not applicable; new system.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.7 Repair, Alteration, Reconstruction, and Relocation	3.7.2	The owner of an aboveground storage tank system shall provide a revised as-built drawing in conformance with Sentence 3.2.7(2) to the authority having jurisdiction in a time frame specified by the authority having jurisdiction whenever new construction, alteration, or site upgrade occurs.	As-built drawings form part of this report.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.8 Corrosion Protection of Aboveground Steel Storage Tank Systems	3.8.1(1)	When cathodic protection is used, it shall be designed by a corrosion expert (See Appendix B, note B.3.8.1(1)) and be in conformance with: (a) API RP 651-97, "Cathodic Protection of Aboveground Petroleum Storage Tanks"; (b) API Std 653-01, "Tank Inspection, Repair, Alteration, and Reconstruction"; (c) NACE RP0193-2001, "External Cathodic Protection of On-Grade Carbon Steel Storage Tank Bottoms"; or (d) STI R893-89, "Recommended Practice for External Corrosion Protection of Shop Fabricated Aboveground Tank Floors."	Not applicable; see 3.3.1(1)(a) above.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.8 Corrosion Protection of Aboveground Steel Storage Tank Systems	3.8.2(1)	Atmospheric corrosion of an aboveground storage tank system shall be controlled by: (a) a protective coating applied in conformance with the coating manufacturer's instructions; (b) a corrosion control program in accordance with API Std 653-01, "Tank Inspection, Repair, Alteration, and Reconstruction"; or (c) the use of a non-corroding material in its construction.	Conforms to (b). Due to there being low corrosion rates in this environment, no corrosion protection was utilized in the design. In the future all testing and repair will be done to API std. 653-01.

Part	Section	Reference	Requirement	Comment
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.1(1)	Subject to Sentences (2) and (3), a secondary containment system for an aboveground storage tank shall: (1) for a storage tank system that consists of a single storage tank, have a volumetric capacity of not less than 110% of the capacity of the tank; or (2) for a storage tank system that consists of more than one storage tank, have a volumetric capacity of not less than the sum of: (a) the capacity of the largest storage tank located in the contained space; and (b) 10% of the greater of: (i) the capacity specified in Clause (a); or (ii) the aggregate capacity of all other storage tanks located in the contained space.	(1) Conforms.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.1(2)	A secondary containment system for a shop fabricated storage tank shall be designed, built, and approved in conformance with: (a) ULC-S653-1994, “Contained Aboveground Steel Tank Assemblies”; (b) ULC-S655-1998, “Aboveground Protected Tank Assemblies”; (c) ORD-C142.5-1992, “Aboveground Concrete Encased Steel Aboveground Tank Assemblies”; or (d) a recognized standard for double-wall tanks.	Not applicable
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.1(3)	A secondary containment system for a field erected aboveground storage tank shall be: (a) a single-wall and single-bottom storage tank placed entirely within a dyked area, with an impermeable barrier in the floor of the containment area and in the dyke walls; (b) a single-wall, double-bottom storage tank placed entirely within a dyked area, with an impermeable barrier in the floor of the containment area and in the dyke walls, sealed to the perimeter of the storage tank or pad when the liner is not installed under the tank; (c) a double-wall storage tank for a storage tank with a capacity of 50 000 L or less; or (d) a double-wall storage tank placed entirely within a dyked area, with an impermeable barrier in the floor of the containment area and in the dyke walls, for a storage tank with a capacity of more than 50 000 L.	Construction conforms to 3.9.1(3)a) A synthetic membrane liner has been installed in the granular construction of the dyke.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.2(1)	Except as provided in Sentence (2), a secondary containment impermeable barrier shall be: (a) designed, built, and approved in conformance with: (i) ORD-C58.9-1997, “Secondary Containment Liners for Underground and Aboveground Tanks”; or (ii) ORD-C142.20-1995, “Aboveground Secondary Containment Tanks”; and (b) installed so that: (i) the liner is sealed to the perimeter of the storage tank or pad when the liner is not installed under the tank; (ii) the liner extends to the top of the dyke wall; (iii) the liner is covered with a noncombustible material of such nature and thickness that it will not fail when the secondary containment is exposed to fire; and (iv) liners that are intended to be exposed in service are listed for aboveground (exposed) use.	The liner for this facility is in conformance with ORD-C58.9-1997, the liner extends to the top of the dyke wall and is placed entirely under the tank floor. The liner is covered with a minimum of 300mm of granular material and placed between layers of geotextile and sand protection.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.2(2)	A secondary containment impermeable barrier that does not conform to Sentence (1) shall: (a) use material compatible with the product being stored and acceptable to the authority having jurisdiction (See Appendix B, note 3.9.2(2)(a)); and (b) be designed, constructed, and maintained to ensure a maximum hydraulic conductivity of 1 x 10-6 cm/s.	Not applicable.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.3(1)	*Liner* penetrations shall be located at the high point or in a raised part of the dyke floor. (See Appendix B, note B.3.9.3(1))	No liner penetrations were incorporated into the construction of the dyke.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.3(2)	All *liner* penetrations shall be sealed.	Conforms; see 3.9.3(1) above.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.4	Monitoring of the *interstitial space* of the *secondary containment* system shall be provided in conformance with Part 6 of this Code.	Conforms.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.10 Spill Containment and Runoff Collection	3.10.1	Spills, overfills, and storm water from product transfer areas shall be contained, treated and disposed of in conformance with the applicable provincial or territorial regulations, guidelines or policies.	The fuel transfer area is incorporated in the design of the secondary containment such that all run-off is collected into the containment area.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.10 Spill Containment and Runoff Collection	3.10.2	Containment area floors within dykes shall slope away from the tank base towards a sump at a slope greater than 1%.	Dyke floor slope is a minimum of 1% from the tank to collection sumps.

Part	Section	Reference	Requirement	Comment
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.10 Spill Containment and Runoff Collection	3.10.3(1)	An oil-water separator used to treat storm water runoff, overfills, or a spill from the product transfer area shall be sized for a minimum hydraulic flow rate of a ten year return, one hour storm event, with the one hour rainfall intensity data obtained for the nearest weather station, and: (a) be designed, built, and approved in conformance with ULC-S656-2000, “Oil-Water Separators”; or (b) conform to the following: (i) be designed to produce a discharge of water that does not contain more than 15 mg/L of free oil and grease as measured by the partition-gravimetric method or other protocol as defined by the authority having jurisdiction ; (ii) be designed for an insoluble-in-water oil with a specific gravity of 0.875 ±0.025; and (iii) be designed based on the hydraulic retention time required to separate oil with a particle droplet size of 60 microns from storm water.	An OWS was purchased as a mobile unit sized and conforming to this section for the tank farm facility. .
Part 4: Design and Installation of Underground Storage Tank Systems	Not Applicable.	Not Applicable.	Not Applicable.	Not applicable.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.1(1)	Piping materials shall, as applicable, be designed, built, and approved in conformance with the following: (a) ASTM A 53, “Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless”; (b) CAN/CSA Z245.1-98, “Steel Line Pipe”; (c) CAN/ULC-S633-1999, “Flexible Underground Hose Connectors”; (d) ORD-C107.7-1993, “Glass-Fibre Reinforced Plastic Pipe and Fittings”; (e) ORD-C107.4-1992, “Ducted Flexible Underground Piping Systems”; (f) ORD-C107.14-1992, “Non-Metallic Pipe and Fittings”; or (g)ORD-C536-1998, “Flexible Metallic Hose”.	Conforms.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.2	Except as provided in this Part, the design and installation of *piping* shall be in conformance with the NFCC.	Conforms.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.3	Except as provided in this Part, the design and installation of *piping* connected to an oil-burning appliance and equipment that comes within the scope of CSA Standard B139, “Installation Code for Oil Burning Equipment” shall be in conformance with that Code.	Not applicable.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.4	*Piping* material shall be installed and maintained in accordance with an *approved* standard, code, or in a manner acceptable to the *authority having jurisdiction* .	Conforms.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.5	Single-wall *piping* shall not have buried or concealed mechanical joints. (See Appendix B, note B.5.2.5)	No buried piping; not applicable.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.6	*Leak detection* testing and monitoring of *piping* shall be in conformance with Part 6.	Visual leak detection on piping; conforms.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.7	A thermal relief valve shall *discharge* into the low pressure side of the *piping* .	Conforms.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.8(1)	*Piping* located below the maximum product level in a tank shall be provided with a means to prevent the release of liquid from the tank by syphon flow.	Inlet valving to the tank has check and gate valves installed on the tank inlet nozzle.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.8(2)	Except as provided in Sentence 5.2.8(3), a manual shut-off valve shall be lockable or have a method of locking.	Conforms.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.8(3)	A manual shut-off valve on the *piping* connecting a *storage tank* and a heating appliance or a stationary combustion engine does not need to be lockable or have a method of locking.	Not applicable.
Part 5: Design and Installation of New Piping Systems	5.3 Product Transfer	5.3.1	The fill pipe on a *storage tank* with a capacity of 5 000 L or more shall be equipped for the attachment of a liquid and vapour-tight connection at the time of filling and shall be sealed with a liquid- and vapour-tight cap when not in use.	All piping systems are sealed on the inlet and outlet connection ends with liquid and vapour tight cap and connections; conforms.
Part 5: Design and Installation of New Piping Systems	5.3 Product Transfer	5.3.2	The suction tube of a *used oil* tank shall be equipped for the attachment of a liquid-tight fitting and shall be sealed with a liquid-tight cap when not in use.	Not applicable.
Part 5: Design and Installation of New Piping Systems	5.4 Design Standard for Underground Piping Systems	Not Applicable.	Not Applicable.	Not applicable.
Part 5: Design and Installation of New Piping Systems	5.5 Installation	5.5.1	Piping shall be installed by a company or individual that is authorized by the authority having jurisdiction.	Piping was installed by Certified Contractor with Certified Welders and procedure for same.
Part 5: Design and Installation of New Piping Systems	5.5 Installation	5.5.2	Piping shall be located and maintained to permit the eventual removal of the piping when the storage tank system is permanently withdrawn from service.	Conforms.
Part 5: Design and Installation of New Piping Systems	5.5 Installation	5.5.3	Piping shall be located in a manner that will prevent allowable design stress from being exceeded.	Piping is designed and constructed in conformance with B31.3 - Process Piping; conforms.

Part	Section	Reference	Requirement	Comment
Part 5: Design and Installation of New Piping Systems	5.5 Installation	5.5.4	Piping located aboveground shall be protected from physical damage due to impact.	Conforms.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.1(1)	A storage tank system shall be tested for leaks in conformance with Sections 6.2 and 6.3: (a) at the time of final installation: (i) for an underground storage tank system, final installation shall be when final surface materials have been installed and prior to being put into service; or (ii) for an aboveground storage tank system, final installation shall be before the storage tank system is put into service; and (b) whenever a leak is suspected in the primary or secondary containment of the storage tanks, piping, containment sumps or related components.	Tanks have been tested in conformance with API 650 and 653. Additional Radiographic testing has been performed in lieu of hydrostatic tank testing.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.2	A line-leak detector shall be designed, built, and approved in conformance with ORDC107.12- 1992, “Line Leak Detection Devices for Flammable Liquid Piping.”	Not applicable; not a pressure system and all piping is above grade and visible to detect leaks. Visual leak detection; see 6.7.2(1) Table 4 and Table 6.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.3	Manual or electronic dip or inventory reconciliation shall be in conformance with Section 8.3.	Refer to 8.5.3(2). Fuel dipping and inventory reconciliation follows the Baffinland BAF-PH1-310-PRO-0001 Fuel Dipping/ Tank Farm Inspection document in Appendix J of this report.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.4(1)	Statistical inventory reconciliation shall be in conformance with: (a) EPA/530/UST-90/007, “Standard Test Procedures for Evaluating Leak Detection Methods: Statistical Inventory Reconciliation Methods”; and (b) EPA 510-B-95-009, “Statistical Inventory Reconciliation.”	Refer to 8.5.3(2). Fuel dipping and inventory reconciliation follows the Baffinland BAF-PH1-310-PRO-0001 Fuel Dipping/ Tank Farm Inspection document in Appendix J of this report.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.5	An automatic tank gauge system with a precision leak detection capability shall be designed, built, and approved in conformance with ORD-C58.12-1992, “Leak Detection Devices (Volumetric Type) for Underground Storage Tanks”.	Not applicable; tank systems are aboveground.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.6	A continuous in-tank leak detection system shall conform to good engineering practice and shall meet the requirements of a precision leak detection test. (See Appendix B, Note B6.2.6.)	Not applicable; continuous in-tank leak detection is not required, visual leak detection is used per 6.7.2(1) Table 4 and Table 6. The system includes a fuel management system to collect tank inventory and fuel delivery transaction data to provide an inventory reconciliation, though the fuel management system is not considered to be continuous in-tank leak detection.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.7(1)	High-technology secondary containment monitoring shall continuously monitor the interstitial space and include the use of an automatic device designed, built, and approved in conformance with: (a) ORD-58.12-1992, “Leak Detection Devices (Volumetric Type) for Underground Storage Tanks”, or (b) ORD-58.14-1992, “Leak Detection Devices (Non-volumetric Type) for Underground Storage Tanks”,.	Not applicable; tank systems are aboveground.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.8	Visual leak detection procedures shall be performed in conformance with Sentence 8.4.1(3).	Conforms. See BAF-PH1-310-PRO-0001 Fuel Dipping/ Tank Farm Inspection (2014) and BAF-PH1-830-P16-0008 Environmental Protection Plan (2014).
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.9(1)	A pressure liquid media leak detection test shall be in conformance with the requirements of a precision leak detection test and: (a) the test device shall be third-party performance certified; and (b) testing technicians shall be trained in the care and use of the test device	Not applicable as spools were tested prior to construction of piping systems.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.10(1)	A static liquid media leak detection test shall be in conformance with the following requirements: (a) leak rate shall not exceed 0.38 L/h; (b) the duration of the test shall be a minimum of 1 hour; (c) there shall be no visual evidence of a leak; and (d) the test fluid shall exceed the elevation of piping and electrical conduit openings installed in sumps at the time of the leak detection test.	Not applicable as spools were tested prior to construction of piping systems.

Part	Section	Reference	Requirement	Comment
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.11(1)	A high-pressure inert gas or vacuum leak detection test for piping shall be in conformance with the following procedures, as applicable: (a) a high-pressure decline test using an inert gas or a vacuum test may be used as a leak detection test for piping systems that are in use and that have a volume of less than 1,000 L; (b)whenever permitted by the equipment design and installation, product contained in the piping system shall be drained prior to conducting the high-pressure inert gas or vacuum test procedure; (c) pumps, dispensers or other auxiliary equipment connected to the piping that cannot be subjected to the pressure of the test shall be isolated from the test procedures to prevent equipment damage; (d) a test pressure or vacuum shall, as applicable: (i) be more than 350 kPa (gauge) or 1.5 times the maximum operating pressure, whichever is greater; (ii) not exceed 700 kPa (gauge), except when the piping system is designed for such pressures; and (iii not exceed the equipment manufacturer's design limitations. (e) stabilization is required after pressurization or vacuum is achieved; (f) a piping system with a volume of less than or equal to 500 L shall have the pressure or vacuum maintained for a period of at least 60 min after stabilization; (g) a piping system with a volume of greater than 500 L but less than or equal to 1,000 L shall have the test pressure or vacuum maintained for a period of at least two hours after stabilization; (h) a piping system with a volume greater than 1000 L shall be tested using a procedure acceptable to the authority having jurisdiction (See Appendix B, Note B6.2.11 (1) (h); and (i) a piping system shall be considered to be leaking when pressure variations that occur after stabilization and within the test time period are greater than two percent of the test pressure or vacuum.	All piping has been tested in conformance with B31.3 - Process Piping; conforms.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.12(1)	A low-pressure inert gas or vacuum leak detection test for piping shall be conducted in conformance with the following procedures, as applicable: (a) a low-pressure decline test using an inert gas or a vacuum test may be used to conduct a leak detection test on the secondary containment of double-wall tanks and double-wall pipe; (b) product contained in the secondary containment system shall be drained prior to conducting the low-pressure decline or vacuum test procedure; (c) a test pressure or vacuum shall, as applicable: (i) be between 20 kPa and 35 kPa; and (ii) not exceed the equipment manufacturer's design limitations; (d) stabilization is required after pressurization or vacuum is achieved; (e) secondary containment shall have the test pressure or vacuum maintained for a period of at least two hours after stabilization; and (f) a piping system shall be considered to be leaking when pressure variations that occur after stabilization and within the test time period are greater than two percent of the test pressure or vacuum.	All piping has been tested in conformance with B31.3 - Process Piping; conforms.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.13(1)	A precision leak detection test shall be in conformance with (See Appendix B, note B.6.2.13(1)): (a) ORD-C58.12-1992, "Leak Detection Devices (Volumetric Type) for Underground Storage Tanks;" or (b) ORD-58.14-1992, "Leak Detection Devices (Non-volumetric Type) for Underground Tanks."	Not applicable; tank systems are aboveground.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.3 Leak Detection Interlocks and Alarms	6.3.1(1)	Subject to Sentence (2), an automatic leak detection device, including a high-technology secondary containment monitoring device and precision line leak detection device, shall be electrically interlocked in such a manner that: (a) when the automatic leak detection device is activated, product flow shall be shut off; and (b) except for on-site maintenance activities, when the automatic leak detection device is turned off or bypassed for more than one minute, product flow shall be terminated.	Not applicable; see 6.7.2(1) Table 4 and Table 6.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.3 Leak Detection Interlocks and Alarms	6.3.1(2)	When an electrical interlock as specified in Sentence (1) is not possible, the authority having jurisdiction shall be notified whenever the leak detection device or method indicates a leak. (See Appendix B, note B.6.3.1(2))	Complies.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.3 Leak Detection Interlocks and Alarms	6.3.2	A suction pump shall be equipped with a single check valve installed directly below the suction pump and piping shall slope so the contents of the pipe will drain back to the storage tank if the suction is broken.	Not applicable.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.3 Leak Detection Interlocks and Alarms	6.3.3	A leak detection alarm shall be located where the staff routinely work and in a place where such alarms can be readily heard and seen.	Not applicable; see 6.7.2(1) Table 4 and Table 6.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.4 Monitoring Wells	Not Applicable.	Not Applicable.	Not applicable; systems do not include monitoring wells.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.5 Groundwater Monitoring Wells	Not Applicable.	Not Applicable.	Not applicable; systems do not include groundwater monitoring wells.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.6 Vapour Monitoring Wells	Not Applicable.	Not Applicable.	Not applicable; systems do not include vapour monitoring wells.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.7 Frequency and Method	6.7.1	The reference letters in Table 2 represent the leak detection and monitoring methods specified in Tables 3 through 9.	Used to complete answers below for 6.7 Frequency and Method.

Part	Section	Reference	Requirement	Comment
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.7 Frequency and Method	6.7.2(1)	Tables 3 through 9 specify the frequencies and methods of leak detection and monitoring that shall be used upon installation and, as applicable (See Appendix B, note B.6.7.2(1)): (a) for in-service monitoring; (b) for periodic leak detection testing; or (c) if a leak is suspected.	(a) Conforms; (b) Conforms; (c) Not applicable.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.7 Frequency and Method	Table 4	Aboveground Storage Tanks: (a) Containment type; (b) Final installation leak detection; (c) In-service monitoring; (d) Periodic leak detection; (e) Leak suspected.	(a) API standard 650-98 (within approved secondary containment); (b) API 650 Standard; (c) Inventory Reconciliation (IR), Visual Leak Detection (VLD); (d) API 653; (e) API 653.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.7 Frequency and Method	Table 6	Aboveground Piping: (a) Containment type; (b) Final installation leak detection; (c) In-service monitoring; (d) Periodic leak detection; (e) Leak suspected.	(a) All types; (b)HighPressure Inert gas or vacuum leak detection test (HPVLDT); (c) VLD; (d) Not required; (e) HPVLDT.
Part 7: Upgrading of Existing Storage Tank Systems	7.2 General Requirements	7.2.1	No person shall upgrade, or cause to be upgraded, an existing storage tank system unless approval has been obtained from the authority having jurisdiction.	Conforms.
Part 7: Upgrading of Existing Storage Tank Systems	7.2 General Requirements	7.2.2(1)	Where an existing storage tank system is upgraded to be in conformance with this Code, the owner shall provide a revised as-built drawing to the authority having jurisdiction in the manner and time frame as specified by the authority having jurisdiction.	Not applicable.
Part 7: Upgrading of Existing Storage Tank Systems	7.2 General Requirements	7.2.2(2)	A revised as-built drawing shall be in conformance with Sentence 3.2.7(2) or 4.2.8(2), as applicable.	As-built drawings form part of this report.
Part 7: Upgrading of Existing Storage Tank Systems	7.2 General Requirements	7.2.3	A partially buried storage tank is considered neither an aboveground nor underground storage tank and shall be withdrawn from service and removed in conformance with Part 9 within two years of the effective date of this Code.	Not applicable; system does not have a "partially buried storage tank".
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.1	An existing aboveground storage tank system not in conformance with Section 3.6 shall be withdrawn from service and removed in conformance with Part 9 within two years of the effective date of this Code.	Not applicable.
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.2(1)	Where underground piping connected to an aboveground storage tank has corrosion protection in conformance with Section 4.5 at the effective date of this Code, the piping may continue in service.	Not applicable.
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.2(2)	Where underground piping connected to an aboveground storage tank does not have corrosion protection in conformance with Section 4.5 at the effective date of this Code: (a) the piping must be withdrawn from service and removed in conformance with Part 9 within two years of the effective date of this Code; or (b) best management practices shall be implemented within two years of the effective date of this Code in conformance with: i) API Std 2610-94, “Design, Construction, Operation, Maintenance and Inspection of Terminal and Tank Facilities”; and ii) API 570-98, “Piping Inspection Code: Inspection, Repair, Alteration, and Rerating of In-Service Piping Systems”.	Not applicable.
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.3(1)	Except as specified in Sentence (2), an aboveground storage tank system shall be upgraded within two years of the effective date of this Code to include, as applicable: (a) liquid and vapour-tight connections, caps and adapters for a storage tank with a capacity of 5 000 L or more; (b) overfill protection in conformance with Article 3.6.2 for a storage tank with a capacity of 5 000 L or more; (c) underground piping in conformance with Section 5.4; (d) dispenser sumps in conformance with Article 3.6.3, where an underground piping run terminates under a dispenser; and (e) secondary containment in conformance with Section 3.9 and Sentences 7.3.4(1) and (2).	Not applicable
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.3(2)	Where secondary containment is not upgraded as provided in Clause (1)(e), an annual precision leak detection test shall be performed.	Not applicable

Part	Section	Reference	Requirement	Comment
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.4(1)	Except as provided in Sentence (2), an existing field-erected aboveground storage tank not upgraded to be in conformance with Section 3.3 shall be withdrawn from service and removed in conformance with Part 9 within five years of the effective date of this Code.	Not applicable.
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.4(2)	Where authorized by the authority having jurisdiction, an existing field-erected aboveground storage tank may be exempt from adding an impermeable barrier under the tank to meet the secondary containment requirements of Section 3.9 provided that within two years of the effective date of this Code: (a) best management practices are followed in conformance with API Std 653-01, “Tank Inspection, Repair, Alteration, and Reconstruction”; or (b) if inspection requires replacing or lining the tank bottom, then 3.9.2(1)(b) shall apply (See Appendix B, note B.7.3.4(2)(b)).	Not applicable.
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.4(3)	In the event that a storage tank owner chooses the exemption provided in Clause 7.3.4(2)(b) and the storage tank bottom or shell becomes perforated, then all other storage tanks with equal or more years of similar service at that site that are being managed under API Std 653-01, “Tank Inspection, Repair, Alteration, and Reconstruction”, shall be: (a) inspected within one year; or (b) re-evaluated within the time frame specified by the new corrosion rate.	Not applicable.
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.5	An existing aboveground storage tank not upgraded with spill containment and runoff collection in conformance with Section 3.10 shall be withdrawn from service and removed in conformance with Part 9 within five years of the effective date of this Code.	Not applicable.
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.6	An existing shop fabricated aboveground storage tank system not upgraded to be in conformance with Sections 3.4, 3.5, and this Section shall be withdrawn from service and removed in conformance with Part 9 within two years of the effective date of this Code.	Not applicable.
Part 7: Upgrading of Existing Storage Tank Systems	7.4 Underground Storage Tank Systems	Not Applicable.	Not Applicable.	Not applicable.
Part 8: Operation and Maintenance	Not applicable for Construction.	Not applicable for Construction.	Not applicable for Construction.	Current operational control documents and SOPs for Baffinland relating to the fuel tank system equipment include: BAF-PH1-310-PRO-0001 Fuel Dipping/ Tank Farm Inspection BAF-PH1-830-P16-0007 Emergency Response Plan BAF-PH1-830-P16-0036 Spill Contingency Plan Operator checklists are found in Section 3 of document BAF-PH1-830-P16-0008 Environmental Protection Plan for fuel handling activities. These documents are referenced to address Baffinland’s requirements relating to Part 8 of the CCME code compliance. In an effort to address requirements relating to additional fuel tank system equipment and requirements associated with the CCME code not currently captured within these referenced documents, operational control documents will undergo revision as required.
Part 9: Withdrawal from Service of Storage Tank Systems	Not Applicable.	Not Applicable.	Not Applicable.	Not applicable.

Appendix G

Geotechnical Investigation and Geotechnical Inspections
2018 Mine Site Geotechnical Investigation Report
H353004-10000-229-230-0006